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OAIP

Ontario
Assessment
Instrument
Pool

Mathematics

GEOMETRY

JUNIOR DIVISION

Ministry of Education
Ontario

The Honourable Sean Conway, Minister
George R. Podrebarac, Deputy Minister

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JUNIOR DIVISION MATHEMATICS: GEOMETRY

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ONTARIO ASSESSMENT INSTRUMENT POOL
BANQUE D'INSTRUMENTS DE MESURE DE L'ONTARIO

The Ontario Assessment Instrument Pool/Banque d'instruments de mesure de l'Ontario (OAIP/BIMO) is a resource designed to assist those in education in fulfilling their responsibilities for evaluating student achievement and the effectiveness of programs in elementary and secondary schools. OAIP/BIMO consists of a large collection of questions in a variety of formats for several subject areas and grade levels. These questions are based on Ontario curriculum guidelines.

OAIP/BIMO materials are intended for use at the classroom, school, system, and provincial levels. At the classroom level, they can be used for instructional as well as assessment purposes. At all levels, their use can provide information related to student achievement for the purposes of (i) evaluating and planning improvements in educational policies and instructional programs, (ii) reporting on the effectiveness and appropriateness of existing policies and programs, and (iii) reporting on the overall progress of groups of students. OAIP/BIMO materials are designed to augment currently used evaluation strategies and tools. It is inappropriate to use them for the purpose of teacher evaluation. Public reporting of comparisons between classes or schools or school boards would also be inappropriate.

POOLS CURRENTLY AVAILABLE

OAIP	English	Intermediate Division
	Geography	Intermediate Division
	History	Intermediate Division
	Mathematics	Junior Division
	French as a Second Language	Grades 6 and 10
	Chemistry	Senior Division
	Physics	Senior Division
BIMO	Anglais	Cycle moyen
	Anglais	Cycle intermédiare
	Français	Cycle moyen
	Français	Cycle intermédiare
	Géographie	Cycle intermédiare
	Chimie	Cycle supérieur
	Physique	Cycle supérieur
	Histoire	Cycle intermédiare (available in Fall 1986)

POOLS BEING DEVELOPED

Pool	Tentative Release Date
OAC Biology	June 1988
Language Arts, Junior Division	January 1989
Mathematics, Intermediate Division (New Pool)	June 1989
Science, Intermediate Division	June 1989
English, Senior Division	June 1989
Science, Junior Division	June 1989
Mathematics, Senior Division	December 1989
Français, cycle supérieur	September 1990
Mathématique, cycle moyen	February 1987

Arrangements are being made for the development of BIMO pools for Intermediate and Senior Divisions in Mathematics and Science.

Basic level pools will also be developed for English, Mathematics, and Science and equivalent pools will be developed for BIMO.

ACKNOWLEDGEMENTS

The Ministry of Education wishes to acknowledge the considerable contributions of the following people to the development of this pool of instruments for mathematics in the Junior Division.

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Special appreciation is extended to all those principals, teachers, and students who participated in the Screening Trials of the instruments prepared for this pool.

INTRODUCTION

The Ontario Assessment Instrument Pool is a collection of assessment instruments designed to serve two basic functions: to be a resource for the evaluation of programs at the provincial and local levels and to assist teachers in evaluating student achievement for both diagnostic and summative purposes. They can also be used for instructional purposes.

The instruments in the Junior Division Mathematics pool have been created to match the expectations for mathematics listed in The Formative Years, pages 11, 12. Because each expectation identifies a large amount of learning to be accomplished over the three years of the Junior Division, the expectations have been broken down into lists of specific objectives representing small steps toward the achievement levels intended for students at the end of this Division. Curriculum documents from twenty-three boards of education were reviewed during the process of creating the essential framework for the development of the instruments in this pool.

Structure of the Pool

The material in this pool has been carefully organized to parallel the mathematics outlined for the Junior Division in The Formative Years. It should be emphasized that this arrangement should not determine or even influence the order in which topics are taught. Education in the Primary and Junior Divisions makes it clear that arithmetic, measurement, and geometry should be integrated and that mathematics as a whole should be firmly linked to communication skills as children learn to represent their experiences and their thinking. This pool has been designed to make the identification and retrieval of particular instruments as simple as possible for the teacher. There are three strands - arithmetic, measurement, and geometry. Each strand is divided into two sections as illustrated in this chart:

STRAND	Arithmetic	Measurement	Geometry
SECTION	Numeration	Quantification	Configuration
	Relationships	Relationships	Relationships

The emphasis on relationships in each of the strands is a serious attempt to apply two of the most important assumptions about learning expressed in Education in the Primary and Junior Divisions - "Most human activity is a purposeful search for pattern" (page 75) and " ... (mathematical) models help children to see relationships in the environment and thus to make sense of the world about them" (page 61). Over 60 per cent of the instruments in this pool are in the sections labelled Relationships.

In addition, objectives are classified according to topic, sub-topic, and category. Pages where the instruments for a new objective begin are identified by a classification table such as this:

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Arithmetic	Numeration	Whole Numbers	Estimation	Applications

While the topics and sub-topics are unique to individual strands and sections, the category labels are common to all. Every objective is identified as being concerned with concept development (understanding), knowledge of facts and operations (skills), or applying concepts and skills in simple problems (applications). While the boundaries between these categories are not always clear, this kind of classification of the objectives will help in the choice of instruments for diagnostic purposes. Teachers are aware that concepts are formed gradually as a result of suitable experiences and discussion. Once a concept is firmly grasped it is unlikely to be forgotten but there is usually a time when it is unstable. During this period it may seem to be established in some situations and not in others. It is for this reason that we cannot look for precision in evaluating understanding and yet we cannot ignore it just because it is difficult to assess. At any one time it is much easier to determine whether or not a student knows a particular fact or can perform specific skills. This knowledge or skill diminishes without frequent real use or, at least, regular practice. Applying mathematics is one of the prime reasons for studying the subject. Where problems are noted in applications, the difficulty may be in the understanding or skills involved. For this reason, in diagnosis, it is useful to refer to instruments on the same sub-topic but under the other categories.

In addition to the classification scheme already described, most objectives are grouped in pairs to emphasize the concept of reversibility which is so critical in assessing levels of competence. For example, in the Arithmetic strand under the topic Whole Numbers, Representation, Objective 8 is "Given the expanded form of a whole number less than one million, the student will identify that number." Objective 9 follows, "Given a whole number less than one million, the student will express it in expanded form." It is important that assessment activities include instruments from each one of the pairs of objectives.

Features of the Instruments

The major purpose of the Ontario Assessment Instrument Pool is to provide teachers and administrators with a bank of good quality questions. The development of this pool has stretched over several years and involved hundreds of educators throughout Ontario. Several thousand students participated in the Screening Trials which provided data for assessing format, difficulty level, and suitability of each instrument. This process led to the removal of many questions involving the use of concrete materials since the availability of such materials could not be guaranteed because of the random selection of participating classrooms. This shortcoming of the pool must not be allowed to influence good teaching which should rely heavily on activity-based learning situations.

The instruments related to each objective may involve one of three types of stimuli and one of three modes of response. Questions may make use of objects (Concrete), representations of objects (Diagram), or descriptions of objects (Verbal), in setting the problem. Answers are to be recorded using multiple choice, a written response, or a sketch. In some cases, the same question is presented in all three formats, each requiring at least two modes of response. While over 40 per cent of the instruments in this pool are multiple choice questions, some oral questions involving concrete materials have been included as models for possible expansion of the pool by groups of teachers. The variety in instrument design adds an element of flexibility that should help teachers devise appropriate assessment activities for the different purposes that arise in every classroom.

Most instruments have answers provided. In some cases, where there is no one correct response, the range of possible answers is indicated. All of these may be easily masked when reproducing the questions for assessment purposes.

The instruments for each objective have been arranged in order of difficulty. Since difficulty is dependent upon the experience of students, this order may not be relevant in a specific class. In the final analysis, it is the teacher who is the best judge of the suitability of each instrument for students in a class.

This pool of instruments can be electronically stored or kept in printed form. A simple code has been developed to assist in identifying the types of questions and to facilitate retrieval. It is alpha-numeric with the first group of three symbols used to indicate the section, the topic, and the sub-topic. The next group consists of four digits, identifying the objective within the sub-topic and the number of the instrument relating to that objective. The final group consists of two letters, identifying the type of stimulus used (C for concrete material, D for diagram, V for verbal) and the form of the response (M for multiple choice, R for written answer, S for sketch or diagram). Thus NWE 0302 DR from the arithmetic strand can be translated as:

N - Numeration	(Section)
W - Whole Numbers	(Topic)
E - Estimation	(Sub-topic)
03 - Objective #3	(Objective/number under NWE)
02 - Instrument #2	(Instrument number related to Objective NWE 03)
D - Diagram	(Type of stimulus)
R - Written Answer	(Form of response)

Use of the Pool

It is important that this pool of instruments be considered a supplement to the resources already available to teacher; it should not be treated as the only supply of assessment materials. Direct observation of students during learning and practice activities should continue to contribute a major portion of assessment data throughout the Junior Division. Teachers who have already accumulated files of questions for specific objectives may wish to cut up these pages and add particular instruments to their own supply. Conversely, good questions in the teachers' files may be added to this pool and the code numbers and format altered to include them. In either case, the resulting collection will be a comprehensive resource for designing assessment activities to serve a wide range of purposes.

(a) Instructional Uses

The pool can be used for instructional purposes as well as assessment. The objectives developed could be compared with those used in board documents and modifications made in either or both lists. Some of the instruments may be appropriate as models for demonstration or discussion during lessons. It is important that students have some experience with the variety of formats and styles of questioning used in the pool before they encounter them in a testing situation.

(b) Survey Tests

Because most of the instruments in the pool can be answered quickly and scored easily, they are particularly useful for tests designed to cover a large amount of material. The beginning of a school year or of a new term is a good time to identify strengths and weaknesses of an entire class. Tests of this kind require a large number of instruments matching the topics or objectives that the teacher believes should have been learned before. Having identified areas of general strength or difficulty, the teacher can then alter the program to meet the needs revealed by the test results. Performance profiles of individual students can be prepared using data from survey test, usually supported by a personalized screening test using different instruments from the pool. The

results of such survey tests should not be recorded as achievement tests. The end of term or near the end of a school year are also appropriate times to use a survey test to provide data on which to base a review program or provide useful information to a new teacher.

Principals or other supervisory officials may use the pool to determine the effectiveness of the mathematics program in a number of classes or in several schools. Again, the results obtained from such surveys should be confirmed by other evidence such as direct observation of the students in the classrooms before major decisions are made.

(c) Achievement Tests

When used in conjunction with other sources, the pool has enough depth and variety of questions on each objective to permit designing tests to determine the level of pupil achievement in specified topics. Records of topic by topic achievement are of immediate value to the teacher in choosing tasks that will maintain feelings of success for each pupil. They can also be passed on to other teachers, helping them to plan work at appropriate levels.

Achievement tests on work taught over a period of time, i.e., a month, term, or year, are useful only when students are to be compared with each other, perhaps for grouping purposes, or in assessing the effectiveness of the program. Data from such tests can be used to support the teacher's judgement in communicating pupil progress to parents.

(d) Tests for Diagnostic Purposes

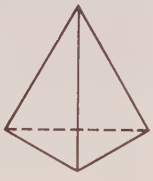
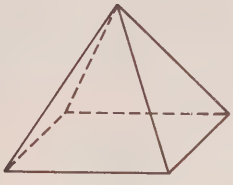
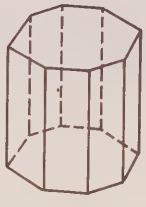
To obtain full value for the time spent doing any test, the teacher should always examine the results for information that can be used to benefit each student. Thus, every test or examination could be labelled diagnostic. However, current propaganda suggests that real 'diagnostic' tests unfailingly allow teachers to pinpoint difficulties and apply effective remedies. It is not that simple. Pencil and paper tests do not always reveal gaps in understanding or deficiencies in skills. The best source of data for diagnosis is direct observation of the student engaged in a mathematical activity.

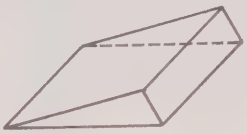
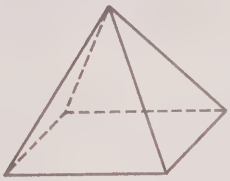
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Configuration	3-D Figures	Representation	Skills

Objective — Given a representation (e.g., concrete model, net, skeleton, sketch) of a 3-D figure, the student will identify the figure.

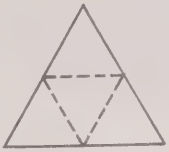
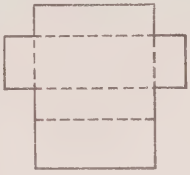
	Instrument	Correct Response
C3R 0101 CR	Give the student a model of a sphere. Ask, "What is the name given to this 3-D figure? Write your answer in the space provided." _____	Sphere
C3R 0102 CM	Give the student a model of a sphere. Ask, "What is the name given to this 3-D figure?" (A) a cylinder (B) a cone (C) a hemisphere (D) a sphere ____	D
C3R 0103 DR	This diagram represents a 3-D figure. It is called a _____	Sphere

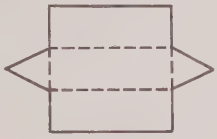
	Instrument	Correct Response
C3R 0104 DM	This diagram represents a 3-D figure. It is called a (A) cylinder (B) cone (C) cuboid (D) sphere ____	D
C3R 0105 CR	Give the student a model of a rectangular prism or cuboid. Ask, "What is the name given to this 3-D figure? Write your answer in the space provided." _____	Cuboid or rectangular prism
C3R 0106 CM	Give the student a model of a rectangular prism or cuboid. Ask, "What is the name given to this 3-D figure?" (A) a rectangular prism (cuboid) (B) a rectangular pyramid (C) a triangular prism (D) a triangular pyramid ____	A
C3R 0107 DR	This diagram represents a 3-D figure. It is called a _____	Cuboid or rectangular prism

	Instrument	Correct Response
C3R 0108 DM	This diagram represents a 3-D figure. It is called a (A) triangular pyramid (B) rectangular pyramid (C) triangular prism (D) rectangular prism (cuboid) ____	D
C3R 0109 DM	Which of these diagrams represents a prism? (A)  (B) (C)  (D)  ____	D

	Instrument	Correct Response
C3R 0110 DM	Which of these diagrams represents a pyramid? (A)  (B) (C)  (D) ____	C
C3R 0111 DM	The following diagrams represent three different faces of a 3-D solid. What is the name of the solid? (A) a cube (B) a cylinder (C) a triangular prism (D) a square pyramid ____	A
C3R 0112 DM	The following diagrams represent three different faces of a 3-D solid. What is the name of the solid? (A) a cube (B) a cuboid (C) a triangular prism (D) a square pyramid ____	B

	Instrument	Correct Response
C3R 0113 DM	The following diagrams represent three different faces of a 3-D solid. What is the name of the solid? (A) a cube (B) a cuboid (C) a triangular prism (D) a square pyramid ____	C
C3R 0114 DM	The following diagrams represent three different faces of a 3-D solid. What is the name of the solid? (A) a cube (B) a cuboid (C) a triangular prism (D) a square pyramid ____	D
C3R 0115 CR	Give the student the net for a tetrahedron. Say, "This net can be folded to make a model of a 3-D figure. What is the name of this figure?" _____	Tetrahedron or triangular-based pyramid

	Instrument	Correct Response
C3R 0116 DR	This net can be cut out and folded to make a model of a 3-D figure. What is the name of the figure?  _____	Tetrahedron
C3R 0117 CR	Give the student the net for a cuboid. Say, "This net can be folded to make a model of a 3-D figure. What is the name of this figure?" _____	Cuboid or rectangular prism
C3R 0118 DR	This net can be cut out and folded to make a model of a 3-D figure. What is the name of the figure?  _____	Cuboid or rectangular prism
C3R 0119 CR	Give the student the net for a triangular prism. Say, "This net can be folded to make a model of a 3-D figure. What is the name of this figure?" _____	Triangular prism

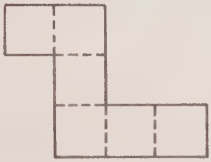
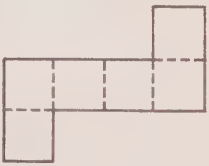
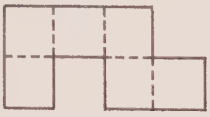
	Instrument	Correct Response
C3R 0120 DR	This net can be cut out and folded to make a model of a 3-D figure. What is the name of the figure?  _____	Triangular prism
C3R 0121 CR	Give the student the net for a square-based pyramid. Say, "This net can be folded to make a model of a 3-D figure. What is the name of this figure?" _____	Square pyramid or square-based pyramid
C3R 0122 DR	This net can be cut out and folded to make a model for a 3-D figure. What is the name of the figure? _____	Square pyramid or square-based pyramid

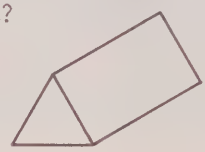
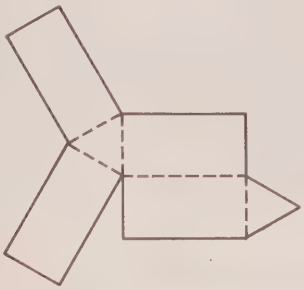
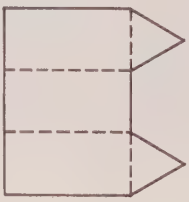
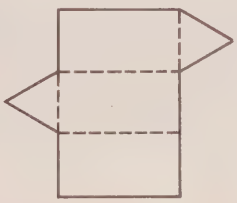
	Instrument	Correct Response
C3R 0123 CR	Give the student 6 drinking straws of the same length and 4 connectors. Say, "Using all the straws for edges and the connectors for vertices, build the skeleton of a 3-D figure. Name it." _____	Tetrahedron
C3R 0124 VM	A skeleton of a 3-D figure is made by using 6 drinking straws of the same length for edges and 4 connectors for vertices. What figure does the skeleton represent? (A) a tetrahedron (B) a triangular prism (C) a cuboid (D) a square pyramid ____	A
C3R 0125 CR	Give the student 8 drinking straws of the same length and 5 connectors. Say, "Using all the straws for edges and the connectors for vertices, build the skeleton of a 3-D figure. Name it." _____	Square pyramid or square-based pyramid
C3R 0126 VM	A skeleton of a 3-D figure is made by using 8 drinking straws for edges and 5 connectors for vertices. What figure does the skeleton represent? (A) a tetrahedron (B) a triangular prism (C) a cuboid (D) a square pyramid ____	D

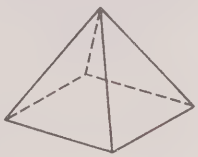
	Instrument	Correct Response
C3R 0127 CR	Give the student 9 drinking staws and 6 connectors. Say, "Using all the straws for edges and all the connectors for vertices, build the skeleton of a 3-D figure. Name it." _____	Triangular prism
C3R 0128 VM	A skeleton of a 3-D figure is made by using 9 drinking straws for edges and 6 connectors for vertices. What figure will the skeleton represent? (A) a tetrahedron (B) a triangular prism (C) a square pyramid (D) a cuboid _____	B
C3R 0129 CR	Give the student 12 drinking straws, 8 of one length and 4 of another, and 8 connectors. Say, "Using the straws for edges and the connectors for vertices, build the skeleton of a 3-D figure. Name it." _____	Cuboid or rectangular prism
C3R 0130 VM	A skeleton of a 3-D figure is made by using 12 drinking straws for edges and 8 connectors for vertices. What figure will the skeleton represent? (A) a tetrahedron (B) a triangular prism (C) a cuboid (D) a square pyramid _____	C

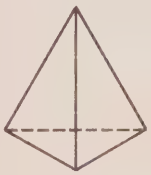
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Configuration	3-D Figures	Representation	Understanding

Objective — Given a model of a 3-D figure, the student will match a representation (e.g., net, skeleton, diagram) with the model.

	Instrument	Correct Response
C3R 0201 CR	Give the student the set of four nets provided. Present a cube. Ask, "Which net can be folded to make a model of this 3-D figure?" For nets of cube see Appendix A.	
C3R 0202 DM	Which net can be used to make a model of the 3-D figure shown on the right? (A)  (B)  (C) (D) 	B

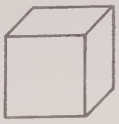
	Instrument	Correct Response
C3R 0203 CR	Give the student the set of four nets provided. Present a triangular prism. Ask, "Which net can be folded to make a model of this 3-D figure?" For nets of triangular prism see Appendix A.	
C3R 0204 DM	Which net can be used to make a model of the 3-D figure shown on the right?  (A)  (B)  (C)  (D) ____	C

	Instrument	Correct Response
C3R C205 CR	Give the student 12 drinking straws and 12 connectors. Present a 3-D model of a square pyramid. Ask, "How many straws and how many connectors will you need to make a skeleton of this 3-D figure?"	8 straws 5 connectors
C3R 0206 DR	How many drinking straws and how many connectors are needed to make a skeleton of the 3-D figure represented below?  Number of straws _____ Number of connectors _____	8 5
C3R 0207 VR	How many drinking straws and how many connectors do you need to make a skeleton of a square-based pyramid? Number of straws _____ Number of connectors _____	8 5
C3R 0208 CR	Give the student 12 drinking straws, 4 each of 3 different lengths, and 12 connectors. Present a 3-D model of a cuboid. Ask, "How many straws and how many connectors will you need to make a skeleton of this 3-D figure?"	12 straws 8 connectors

	Instrument	Correct Response
C3R 0209 DR	How many drinking straws and how many connectors are needed to make a skeleton of the 3-D figure represented below? Number of straws _____ Number of connectors _____	 12 8
C3R 0210 VR	How many drinking straws and how many connectors do you need to make a skeleton of a cuboid? Number of straws _____ Number of connectors _____	 12 8
C3R 0211 DR	If you had an apple or a potato, what is the least number of slices you must make with a knife to form a tetrahedron? _____	 4
C3R 0212 DR	What is the least number of slices you must make in an apple or a potato to get a solid model of the 3-D figure represented below?  _____	 4

	Instrument	Correct Response
C3R 0213 VR	A solid model of a tetrahedron is to be made from an apple. What is the least number of slices you must make? _____	4
C3R 0214 CR	Give the student an apple or a potato, a model of a triangular prism, and a knife. Ask, "What is the least number of slices you must make to get a solid model like this one?" _____	5
C3R 0215 DR	What is the least number of slices you must make in an apple or a potato to make a solid model of the 3-D figure represented below? _____	5
C3R 0216 VR	A solid model of a triangular prism is to be made from an apple. What is the least number of slices you must make? _____	5
C3R 0217 VS	Draw a cube.	

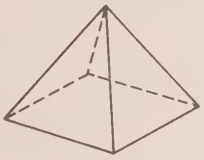
	Instrument	Correct Response
C3R 0218 VS	Draw a cylinder.	
C3R 0219 VS	Draw a cone.	
C3R 0220 CS	Give the student a cube. Say, "Look at this model from the top, from the front, and from the side. Draw the three faces that you have seen in the space provided." TOP FRONT SIDE . . . .

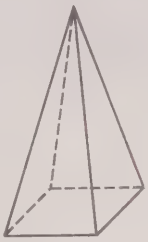
	Instrument	Correct Response
C3R 0221 DS	This figure represents a 3-D object. Draw the top face, the front face, and the side face in the space provided.  TOP FRONT SIDE	
C3R 0222 VS	Imagine you are looking at a cube. Draw the top face, the front face, and the side face in the space provided. TOP FRONT SIDE	

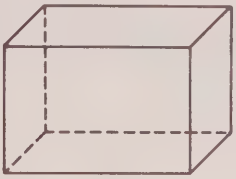
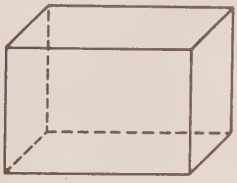
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Configuration	3-D Figures	Properties	Skills

Objective

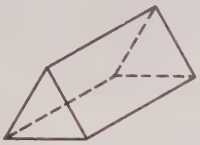
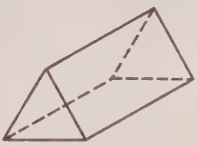
Given a model, picture, or name of a 3-D figure, the student will identify specific properties of the figure (e.g., number of edges, vertices; types of faces; number of planes of symmetry).

	Instrument	Correct Response
C3P 0101 CR	Give the student a model of a square-based pyramid. Ask, "How many vertices and how many edges does this solid have? Write your answers in the spaces provided." Number of vertices _____ Number of edges _____	 5 8
C3P 0102 CM	Give the student a model of a square-based pyramid. Ask, "How many vertices and how many edges does this solid have?" (A) 4 vertices and 7 edges (B) 5 vertices and 7 edges (C) 4 vertices and 8 edges (D) 5 vertices and 8 edges _____	 D
C3P 0103 DR	This diagram represents a 3-D figure. How many vertices and how many edges does it have?  Number of vertices _____ Number of edges _____	 5 8

	Instrument	Correct Response
C3P 0104 DM	This diagram represents a 3-D figure. It has:  (A) 4 vertices and 7 edges (B) 5 vertices and 7 edges (C) 4 vertices and 8 edges (D) 5 vertices and 8 edges _____	D
C3P 0105 VR	How many vertices and how many edges does a square-based pyramid have? Number of vertices _____ Number of edges _____	5 8
C3P 0106 VM	A square-based pyramid has (A) 4 vertices and 7 edges (B) 5 vertices and 7 edges (C) 4 vertices and 8 edges (D) 5 vertices and 8 edges _____	D
C3P 0107 CR	Give the student a model of a cuboid (with no square face). Ask, "How many planes of symmetry does this solid have?" Number of planes of symmetry _____	3

	Instrument	Correct Response
C3P 0108 CM	Give the student a model of a cuboid (with no square face). Ask, "How many planes of symmetry does this solid have?" (A) 0 (B) 2 (C) 3 (D) 4 ____	C
C3P 0109 DR	This diagram represents a 3-D figure. How many planes of symmetry does this figure have?  Number of planes of symmetry ____	3
C3P 0110 DM	This diagram represents a 3-D figure. The number of planes of symmetry in the figure is  (A) 0 (B) 2 (C) 3 (D) 4 ____	C
C3P 0111 VR	How many planes of symmetry does a cuboid have? Number of planes of symmetry ____	3 5 (if one pair of square faces) 9 (if a cube)

	Instrument	Correct Response
C3P 0112 VM	The number of planes of symmetry in a cuboid is (A) 0 (B) 2 (C) 3 (D) 4 _____	C
C3P 0113 CR	Give the student a model of a triangular-based prism. Ask, "How many triangular faces and how many rectangular faces does this solid have?" Number of triangular faces _____ Number of rectangular faces _____	2 3
C3P 0114 CM	Give the student a model of a triangular-based prism. Ask, "How many triangular faces and how many rectangular faces does this solid have?" (A) 1 triangular face and 4 rectangular faces (B) 2 triangular faces and 3 rectangular faces (C) 3 triangular faces and 2 rectangular faces (D) 4 triangular faces and 1 rectangular face _____	B

	Instrument	Correct Response
C3P 0115 DR	This diagram represents a 3-D figure. How many triangular and how many rectangular faces does it have?  Number of triangular faces _____ Number of rectangular faces _____	2 3
C3P 0116 DM	This diagram represents a 3-D figure. The surface is made up of:  (A) 1 triangular face and 4 rectangular faces (B) 2 triangular faces and 3 rectangular faces (C) 3 triangular faces and 2 rectangular faces (D) 4 triangular faces and 1 rectangular face _____	B
C3P 0117 VR	The surface of any triangular prism is made up of triangular surfaces and rectangular surfaces. How many are there of each? Number of triangular faces _____ Number of rectangular faces _____	2 3

	Instrument	Correct Response
C3P 0118 VM	The surface of any triangular prism is made up of: (A) 1 triangular face and 4 rectangular faces (B) 2 triangular faces and 3 rectangular faces (C) 3 triangular faces and 2 rectangular faces (D) 4 triangular faces and 1 rectangular face _____	B
C3P 0119 CR	Give the student a model of a sphere. Say, "Describe the surface of this model." _____ _____ _____	Any description of a curved surface
C3P 0120 CM	Give the student a model of a sphere. Say, "Choose the statement that best describes the surface of this model." (A) It has 1 curved surface and 0 flat surfaces. (B) It has 0 curved surfaces and 1 flat surface. (C) It has 2 curved surfaces and 0 flat surfaces. (D) It has 1 curved surface and 2 flat surfaces. _____	A

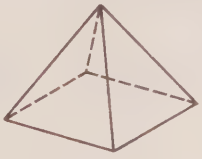
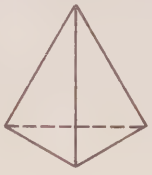
	Instrument	Correct Response
C3P 0121 DR	This diagram represents a sphere. Describe its surface. _____ _____ _____	Any description of a curved surface
C3P 0122 DM	This diagram represents a sphere. Which statement best describes its surface? (A) It has 1 curved surface and 0 flat surfaces. (B) It has 0 curved surfaces and 1 flat surface. (C) It has 2 curved surfaces and 0 flat surfaces. (D) It has 1 curved surface and 2 flat surfaces. ____	A
C3P 0123 VR	Describe the surface of a sphere. _____ _____ _____	Any description of a curved surface

	Instrument	Correct Response
C3P 0124 VM	The surface of a sphere is made up of: (A) 1 curved surface and 0 flat surfaces. (B) 0 curved surfaces and 1 flat surface. (C) 2 curved surfaces and 1 flat surface. (D) 1 curved surface and 2 flat surfaces. _____	A

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Configuration	3-D Figures	Properties	Skills

Objective

Given specific properties of 3-D figures (e.g., types of surfaces, faces; number of vertices, edges; number of planes of symmetry), the student will identify figures that have these properties.

	Instrument	Correct Response
C3P 0201 CR	Give the student a set of 3-D figures consisting of a square pyramid, an isosceles tetrahedron, a cuboid, and an isosceles triangular prism. Ask, "Which one of these figures has 3 planes of symmetry?" _____	Cuboid or rectangular prism
C3P 0202 DM	Which one of these diagrams represents a 3-D figure that has 3 planes of symmetry? (A)  (B)  (C) (D) _____	C

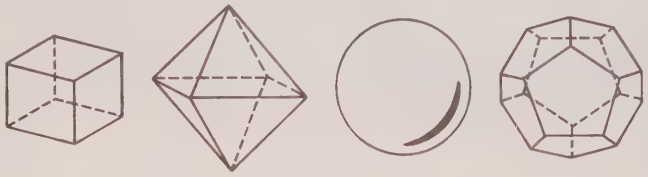
	Instrument	Correct Response
C3P 0203 VM	Which one of these 3-D figures has 3 planes of symmetry? (A) square-based pyramid (B) tetrahedron (C) cuboid (D) triangular prism _____	C
C3P 0204 VS	Draw a 3-D figure that has 6 square faces and no other faces.	
C3P 0205 VS	Draw a 3-D figure that has 2 square faces, 4 rectangular faces, and no other faces.	
C3P 0206 VS	Draw a 3-D figure that has 2 triangular faces, 3 rectangular faces, and no other faces.	

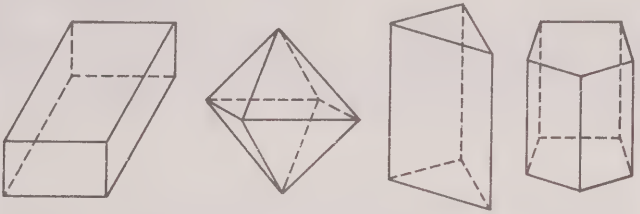
	Instrument	Correct Response
C3P 0207 VM	Which 3-D figure has 1 curved surface and 0 flat surfaces? (A) a cylinder (B) a cone (C) a hemisphere (D) a sphere _____	D
C3P 0208 VM	Which 3-D figure has 1 curved surface and 2 flat surfaces? (A) a sphere (B) a cone (C) a cylinder (D) a prism _____	C
C3P 0209 VM	Which 3-D figure has 1 curved surface and 1 flat surface? (A) a sphere (B) a cone (C) a cylinder (D) a prism _____	B
C3P 0210 VM	Which 3-D figure has 0 curved surfaces and 4 flat surfaces? (A) a cylinder (B) a cone (C) a tetrahedron (D) a square pyramid _____	C
C3P 0211 VR	Write the name of a 3-D figure that has 4 vertices and 6 edges. _____	Tetrahedron

	Instrument	Correct Response
C3P 0212 VR	Write the name of a 3-D figure that has 8 vertices and 12 edges. _____	Cube or cuboid
C3P 0213 VR	Write the name of a 3-D figure that has 6 vertices and 9 edges. _____	" Triangular prism

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Configuration	3-D Figures	Properties	Applications

Objective — Given a set of models of 3-D figures, their pictures, or their names, the student will identify figures that have common properties of surfaces or vertices and edges.

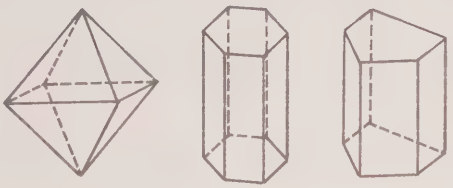
	Instrument	Correct Response
C3P 0301 DM	Three of these figures are alike. Which one is different?  (A) (B) (C) (D) _____	C
C3P 0302 VR	You have a set of four 3-D figures. They are a cube, an octahedron, a sphere, a dodecahedron. Three of these figures are alike. Which one is different? _____	A sphere

	Instrument	Correct Response
C3P 0303 DM	Three of these figures are alike. Which one is different?  (A) (B) (C) (D) ____	B
C3P 0304 VR	You have a set of four 3-D figures. They are a cuboid, an octahedron, a triangular prism, a pentagonal prism. Three of these figures are alike. Which one is different? _____	An octahedron

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Configuration	3-D Figures	Properties	Applications

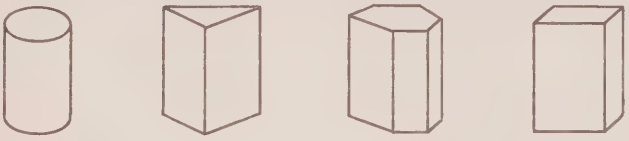
Objective — Given a set of models of 3-D figures, their pictures, or their names, the student will identify any common properties.

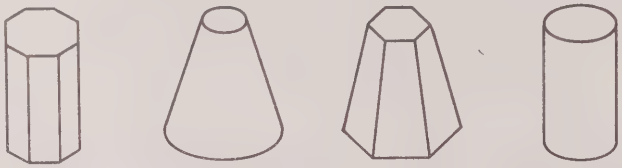
	Instrument	Correct Response
C3P 0401 CR	Give the student a set of 3-D models consisting of a sphere, a cone, a cylinder. Say, "Name one property that is shared by each of these 3-D figures." _____	Any common property such as: a curved surface or they all roll ...
C3P 0402 DR	Name one property that is shared by each of the 3-D figures represented below. _____	Any common property such as: a curved surface or they all roll ...
C3P 0403 VR	Name one property shared by cones, cylinders, and spheres. _____	Any common property such as: a curved surface or they all roll ...

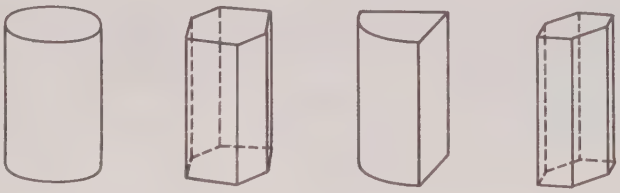
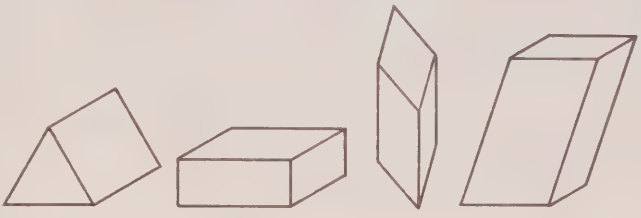
	Instrument	Correct Response
C3P 0404 CR	Give the student a set of 3-D models consisting of an octahedron, a hexagonal prism, and a pentagonal pyramid. Say, "Name one property that is shared by each of these 3-D figures."	Any common property such as: all faces are flat surfaces or all have edges ...
C3P 0405 DR	Name one property that is shared by all the figures represented below. 	Any common property such as: all faces are flat surfaces or all have edges ...
C3P 0406 VR	Name one property that is shared by octahedrons, hexagonal prisms, and pentagonal pyramids.	Any common property such as: all faces are flat surfaces or all have edges ...

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Configuration	3-D Figures	Everyday Uses	Applications

Objective — Given an everyday object, its picture, or its name, the student will identify the 3-D figure that has the same shape as the object.

	Instrument	Correct Response
C3U 0101 DM	Which one of these diagrams represents a 3-D figure that looks most like the the can of oil shown on the right? (A) (B) (C) (D) ____	C
C3U 0102 DM	Which one of these diagrams represents a 3-D figure that looks most like the plank shown on the right?  (A) (B) (C) (D) ____	D

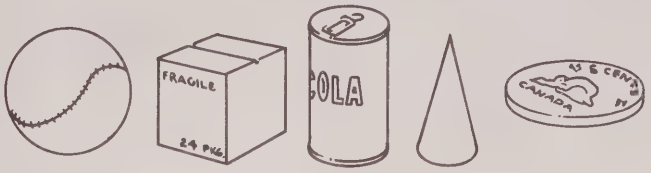
	Instrument	Correct Response
C3U 0103 DM	Which one of these diagrams represents a 3-D figure that looks most like the cork shown on the right?  (A) (B) (C) (D) _____	B
C3U 0104 DR	Write the name of the 3-D figure that has the same shape as the everyday object shown in this diagram. _____	Cube
C3U 0105 DR	Write the name of the 3-D figure that has the same shape as the everyday object shown in this diagram. _____	Cone

	Instrument	Correct Response
C3U 0106 DM	These diagrams represent 3-D figures. Which one is shaped most like a hockey puck?  (A) (B) (C) (D) ____	A
C3U 0107 DM	These diagrams represent 3-D figures. Which one is shaped most like a book?  (A) (B) (C) (D) ____	B
C3U 0108 VR	Write the geometric name of the 3-D figure that is shaped most like a soft drink can. _____	Cylinder
C3U 0109 VR	Write the geometric name of the 3-D figure that is shaped most like a box of cereal. _____	Cuboid rectangular prism

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Configuration	3-D Figures	Everyday Uses	Applications

Objective — Given an everyday object, its picture, or its name, the student will identify specific properties of the object.

	Instrument	Correct Response
C3U 0201 CR	Give the student a set of objects consisting of a juice can, a penny, a ball, and a cone, and provide a slightly sloping surface, such as a 3-ring binder or a stiff cardboard propped up along one edge. Say, "Put these things, one at a time, on the surface and let them roll down. Watch how they roll." Ask:	
	(a) "Do they all roll the same way?"	No
	(b) "Try to put each object on the surface so that it will not roll down. Is there one of the objects that you cannot stop from rolling?"	Yes
	(c) "Why will one always roll?"	It has only a curved surface.
	(d) "Why will the others only roll sometimes?"	Each has at least one flat surface.

	Instrument	Correct Response
C3U 0202 DR	These pictures represent five everyday objects.  (A) (B) (C) (D) (E)	
	(a) Which one will never roll down a slight slope? ____	B
	(b) Which one will always roll down a slight slope? ____	A
	(c) Which ones will roll sometimes? ____	C, D, E

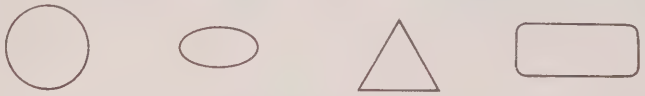
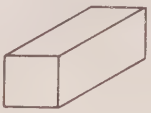
	Instrument	Correct Response
C3U 0203 VR	Judy has a ball, a penny, a juice can, a paper cone, and a small box. She is trying to roll them, one at a time, down a slight slope.	
	(a) Which one will never roll? Why?	
	_____	Box - no curved surface
	_____	
	(b) Which one will always roll? Why?	
	_____	Ball - only a curved surface
	_____	
	(c) Which ones will roll sometimes? Why?	
	_____	Penny, can, cone - a curved surface and at least one flat surface
	_____	
	_____	
C3U 0204 CR	Give the student 9 straws of the same length and 6 connectors. Say, "Build two triangles." Ask:	
	(a) "Are they rigid shapes?"	Yes
	(b) "Join the vertices of one triangle to the vertices of the other triangle. What shape are the side faces?"	Square
	(c) "Is your model rigid?"	No
	(d) "How many more straws do you need to make it rigid?"	2 or 3

	Instrument	Correct Response
C3U 0205 DR	This diagram represents the skeleton of a triangular prism. How many more straws do you need to make it rigid? _____	2 or 3
C3U 0206 VR	The skeleton of a triangular prism is made by joining the vertices of two congruent triangles with 3 straws equal in length. What is the minimum number of additional straws needed to make the skeleton rigid? _____	2 or 3
C3U 0207 CR	Give the student a set of everyday objects: a juice can, a coffee mug, a book, a shoe. Ask, "Which one of these objects does not have a plane of symmetry?" _____	Shoe

	Instrument	Correct Response
C3U 0208 DM	Which one of these diagrams represents an object that does not have a plane of symmetry? (A) (B) (C) (D) _____	B
C3U 0209 VM	Which one of these everyday objects does not have a plane of symmetry? (A) a juice can (B) a shoe (C) a coffee mug (D) a book _____	B

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Configuration	2-D Figures	Representation	Understanding

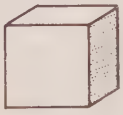
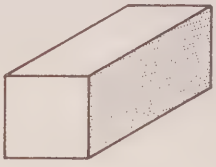
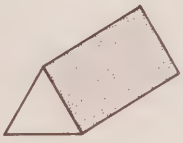
Objective — Given a picture of a 3-D figure, the student will identify tracings of the faces.

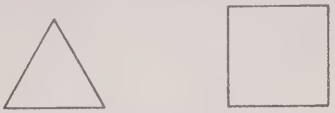
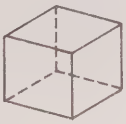
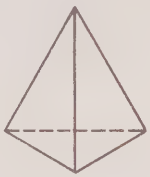
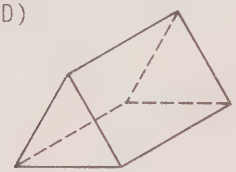
	Instrument	Correct Response
C2R 0101 DM	Which of the 2-D figures shown below can be drawn by tracing the base of the cone shown on the right?  (A) (B) (C) (D) ____	A
C2R 0102 DM	Which of the 2-D figures shown below can be drawn by tracing the faces of the 3-D figure shown on the right?  (1) (2) (3) (4) (A) only 2 and 3 (B) only 2 and 4 (C) only 1 and 4 (D) only 1 and 3 ____	D

	Instrument	Correct Response
C2R 0103 DM	Which of the 2-D figures shown below can be drawn by tracing the faces of the 3-D figure shown on the right (1) (2) (3) (4) (A) only 1 and 2 (B) only 1 and 3 (C) only 2 and 4 (D) only 3 and 4 ____	C
C2R 0104 DM	Which of the 2-D figures shown below can be drawn by tracing the faces of 3-D figure shown on the right? (1) (2) (3) (4) (A) only 1 and 2 (B) only 2 and 3 (C) only 3 and 4 (D) only 1 and 4 ____	C

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Configuration	2-D Figures	Representation	Understanding

Objective — Given tracings of the faces of a 3-D figure, the student will identify the figure.

	Instrument	Correct Response
C2R 0201 DM	The figures shown below have been drawn by tracing the faces of a 3-D solid. Which one of the following diagrams represents the 3-D solid that has been traced?  (A)  (B)  (C) (D) ____	B

	Instrument	Correct Response
C2R 0202 DM	The figures shown below have been drawn by tracing the faces of a 3-D solid.  Which one of the following diagrams represents the 3-D solid that has been traced? (A)  (B)  (C) (D)  _____	D

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Configuration	2-D Figures	Representation	Understanding

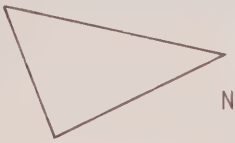
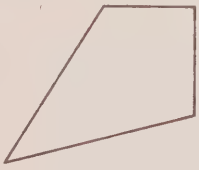
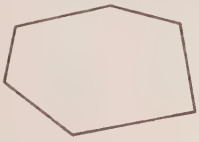
Objective — Given the materials to construct a skeleton of a 2-D figure, the student will identify the figure.

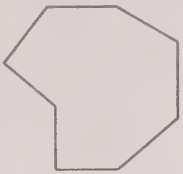
	Instrument	Correct Response
C2R 0301 VM	A skeleton of a 2-D figure is to be made by using 3 drinking straws for sides and 3 connectors for vertices. What figure will the skeleton represent? (A) a triangle (B) a quadrilateral (C) a pentagon (D) a hexagon ____	A
C2R 0302 VM	A skeleton of a 2-D figure is to be made by using 5 drinking straws for sides and 5 connectors for vertices. What figure will the skeleton represent? (A) a triangle (B) a quadrilateral (C) a pentagon (D) a hexagon ____	C
C2R 0303 VM	A skeleton of a 2-D figure is to be made by using 4 drinking straws for sides and 4 connectors for vertices. What figure will the skeleton represent? (A) a triangle (B) a quadrilateral (C) a pentagon (D) a hexagon ____	B

	Instrument	Correct Response
C2R 0304 VM	A skeleton of a 2-D figure is to be made by using 4 drinking straws of equal length for sides and 4 connectors for vertices. What figure will the skeleton represent? (A) an equilateral triangle (B) a trapezoid (C) a pentagon (D) a square or a rhombus _____	D

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Configuration	2-D Figures	Representation	Understanding

Objective — Given a 2-D figure, or its name, the student will identify specific components of a model of the figure.

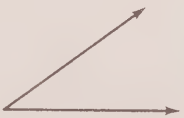
	Instrument	Correct Response
C2R 0401 DR	A model of the 2-D figure drawn below is made by using drinking straws for sides and connectors for vertices. How many of each do you need?	
	 Number of straws ____	3
	Number of connectors ____	3
C2R 0402 DR	A model of the 2-D figure drawn below is to be made by using drinking straws for sides and connectors for vertices. How many of each do you need?	
	 Number of straws ____	4
	Number of connectors ____	4
C2R 0403 DR	A model of the 2-D figure drawn below is to be made by using drinking straws for sides and connectors for vertices. How many of each do you need?	
	 Number of straws ____	6
	Number of connectors ____	6

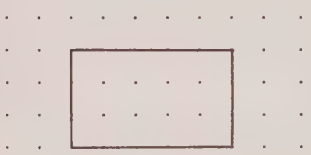
	Instrument	Correct Response
C2R 0404 DR	A model of the 2-D figure drawn below is to be made by using drinking straws for sides and connectors for vertices. How many of each do you need?  Number of straws _____ Number of connectors _____	8 8
C2R 0405 CR	Provide the student with a rectangular piece of cardboard and a pair of scissors. Ask, "Cut a triangular shape from this piece of cardboard. What is the least number of cuts that you need to make?" Number of cuts _____	1
C2R 0406 VM	A model of a triangular region is to be cut from a rectangular piece of cardboard. What is the least number of cuts that have to be made? (A) 0 (B) 1 (C) 2 (D) 3 _____	B
C2R 0407 CR	Provide the student with a rectangular piece of cardboard and a pair of scissors. Ask, "Cut a square shape from this piece of cardboard. What is the least number of cuts that you need to make?"	1

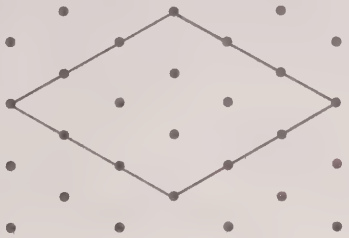
	Instrument	Correct Response
C2R 0408 VM	A model of a square region is to be cut from a rectangular piece of cardboard. What is the least number of cuts that have to be made? (A) 4 (B) 3 (C) 2 (D) 1 _____	D
C2R 0409 CR	Provide the student with a rectangular piece of cardboard and a pair of scissors. Ask, "Cut a pentagonal shape from this piece of cardboard. What is the least number of cuts that you need to make?"	1
C2R 0410 VM	A pentagon is to be cut from a rectangular piece of cardboard. What is the least number of cuts that have to be made? (A) 1 (B) 2 (C) 3 (D) 4 _____	A
C2R 0411 CR	Provide the student with a rectangular piece of cardboard and a pair of scissors. Ask, "Cut a hexagonal shape from this piece of cardboard. What is the least number of cuts that have to be made?"	2
C2R 0412 VM	A hexagon is to be cut from a rectangular piece of cardboard. What is the least number of cuts that have to be made? (A) 1 (B) 2 (C) 4 (D) 8 _____	B

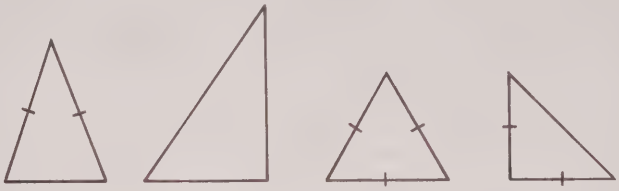
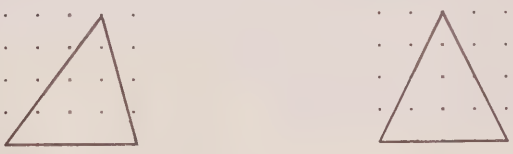
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Configuration	2-D Figures	Representation	Skills

Objective — Given a 2-D figure, or its name, the student will identify the figure.

	Instrument	Correct Response
C2R 0501 DM	This diagram represents (A) a circle (B) a curve (C) a line (D) a point ____	A
C2R 0502 DM	This diagram represents (A) an arc (B) a curve (C) a line (D) a ray ____	D
C2R 0503 DM	This diagram represents  (A) two parallel lines (B) two perpendicular lines (C) two intersecting lines (D) two rays having a common end point ____	D

	Instrument	Correct Response
C2R 0504 DM	This diagram represents (A) a polygon (B) a circle (C) a simple closed curve (D) a complex closed curve ____	C
C2R 0505 DR	Name the 2-D figure shown in this diagram.  _____	Rectangle
C2R 0506 DR	Name the 2-D figure shown in this diagram. _____	Parallelogram

	Instrument	Correct Response
C2R 0507 DR	What is the geometric name of the 2-D figure shown in this diagram.  _____	Rhombus
C2R 0508 DR	What is the geometric name of the 2-D figure shown in this diagram? _____	Hexagon
C2R 0509 DM	Which one of these diagrams represents a right-angled triangle? (A) (B) (C) (D) _____	D

	Instrument	Correct Response
C2R 0510 DM	Which one of these diagrams represents an equilateral triangle?  (A) (B) (C) (D) ____	C
C2R 0511 DM	Which one of these diagrams represents a right-angled isosceles triangle?  (A) (C) (B) (D) ____	D

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Configuration	2-D Figures	Representation	Skills

Objective Given the name of a 2-D figure, the student will draw the figure.

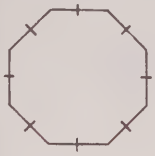
	Instrument	Correct Response
C2R 0612 VS	Draw a quadrilateral.	
C2R 0613 VS	Draw an isosceles triangle.	
C2R 0614 VS	Draw a rectangle.	

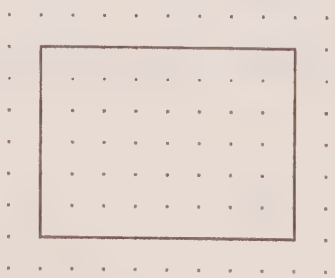
	Instrument	Correct Response
C2R 0615 VS	Draw a semicircle.	
C2R 0616 VS	Draw a hexagon.	
C2R 0617 VS	Draw an octagon.	
C2R 0618 VS	Draw a simple closed curve.	

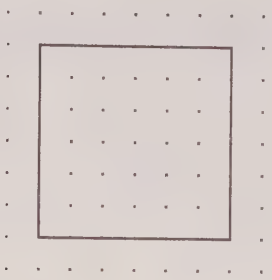
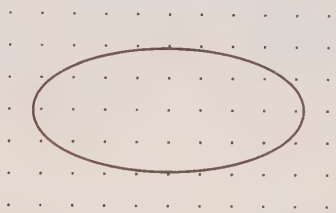
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Configuration	2-D Figures	Properties	Skills

Objective — Given a 2-D figure, or its name, the student will identify specific properties of the figure.

	Instrument	Correct Response
C2P 0101 DM	The 2-D figure shown in this diagram has (A) no turn symmetry (B) only $\frac{1}{4}$ turn symmetry (C) only $\frac{1}{3}$ turn symmetry (D) only $\frac{1}{2}$ turn symmetry ____	A
C2P 0102 DM	The 2-D figure in this diagram has (A) no turn symmetry (B) only $\frac{1}{4}$ turn symmetry (C) only $\frac{1}{2}$ turn symmetry (D) only $\frac{1}{3}$ turn symmetry ____	D

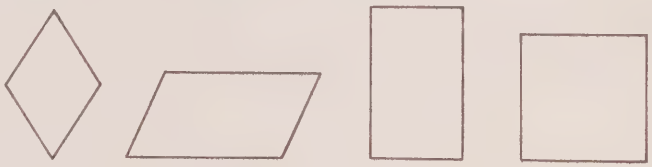
	Instrument	Correct Response
C2P 0103 DM	The 2-D figure in this diagram has  (A) no turn symmetry (B) only $\frac{1}{8}$ turn symmetry (C) only $\frac{1}{4}$ turn symmetry (D) infinite turn symmetry ____	B
C2P 0104 DM	The 2-D figure shown in this diagram has (A) no turn symmetry (B) only $\frac{1}{4}$ turn symmetry (C) only $\frac{1}{2}$ turn symmetry (D) infinite turn symmetry ____	D
C2P 0105 VM	The number of <u>pairs</u> of parallel sides in a rectangle is (A) 0 (B) 1 (C) 2 (D) 4 ____	C

	Instrument	Correct Response
C2P 0106 VM	The number of <u>pairs</u> of parallel sides in a trapezoid is (A) 0 (B) 1 (C) 2 (D) 4 _____	B
C2P 0107 VM	The number of <u>pairs</u> of parallel sides in a regular hexagon is (A) 2 (B) 3 (C) 4 (D) 6 _____	B
C2P 0108 DS	Draw all the lines of symmetry for the figure shown below. 	
C2P 0109 DS	Draw all the lines of symmetry for the figure shown below. 	

	Instrument	Correct Response
C2P 0110 DS	Draw all the lines of symmetry for the figure shown below. 	
C2P 0111 DS	Draw all the lines of symmetry for the figure shown below. 	

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Configuration	2-D Figures	Properties	Skills

Objective — Given specific properties of 2-D figures, the student will identify figures that have these properties.

	Instrument	Correct Response
C2P 0201 DM	Which triangle has just one line of symmetry? (A) (B) (C) (D) ____	D
C2P 0202 DM	Which quadrilateral has exactly 4 lines of symmetry?  (A) (B) (C) (D) ____	D

	Instrument	Correct Response
C2P 0203 DM	Which 2-D figure has more than 12 lines of symmetry? (A) (B) (C) (D) ____	C
C2P 0204 VM	A four-sided polygon that has neither equal nor parallel sides can always be called a (A) rectangle (B) parallelogram (C) trapezoid (D) quadrilateral ____	D
C2P 0205 VM	A four-sided polygon that has 0 pairs of equal sides and 1 pair of parallel sides can always be called a (A) parallelogram (B) kite (C) trapezoid (D) parallelogram ____	C
C2P 0206 VM	A four-sided polygon that has 1 pair of equal sides and 0 pairs of parallel sides can always be called a (A) parallelogram (B) trapezoid (C) kite (D) quadrilateral ____	D

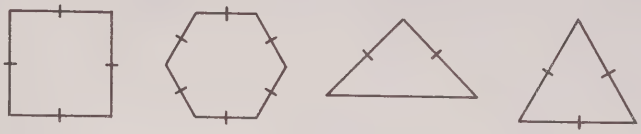
	Instrument	Correct Response
C2P 0207 VM	A four-sided polygon that has 2 pairs of equal sides and 2 pairs of parallel sides can be called a (A) rhombus (B) square (C) parallelogram (D) rectangle _____	C
C2P 0208 VM	A four-sided polygon that has 2 pairs of equal sides and 0 pairs of parallel sides can always be called a (A) rhombus (B) kite (C) isosceles (D) parallelogram _____	B
C2P 0209 VR	Name a plane figure that has only half turn symmetry. _____	Rectangle or ...
C2P 0210 VR	Name a plane figure that has $\frac{1}{4}$ turn symmetry. _____	Square or ...
C2P 0211 VR	Name a plane figure that has only $\frac{1}{3}$ turn symmetry. _____	Equilateral triangle

	Instrument	Correct Response
C2P 0212 VR	Name a plane figure that has $\frac{1}{6}$ turn symmetry. _____	Regular hexagon or ...

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Configuration	2-D Figures	Properties	Applications

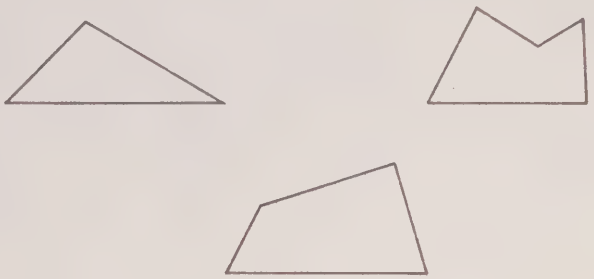
Objective — Given a set of 2-D figures, the student will identify figures that have common properties.

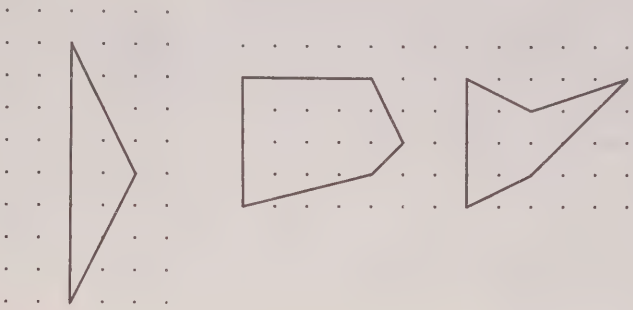
	Instrument	Correct Response
C2P 0301 DM	Three of these figures are alike. Which one is different? (A) (B) (C) (D) ____	B
C2P 0302 DM	Three of these figures are alike. Which one is different? (A) (B) (C) (D) ____	B

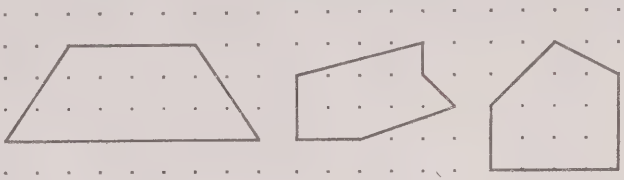
	Instrument	Correct Response
C2P 0303 DM	Three of these figures are alike. Which one is different?  (A) (B) (C) (D) ____	C

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Configuration	2-D Figures	Properties	Understanding

Objective — Given a set of 2-D figures, the student will identify any common properties of the figures.

	Instrument	Correct Response
C2P 0401 DM	Which one of the following properties is shared by all three polygons in this diagram?  (A) Each polygon has 0 pairs of parallel sides. (B) Each polygon has 1 pair of parallel sides. (C) Each polygon has 1 pair of congruent sides. (D) Each polygon has 2 pairs of congruent sides. ____	A

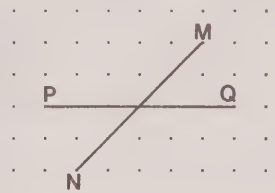
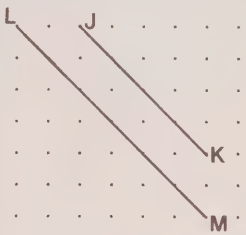
	Instrument	Correct Response
C2P 0402 DM	Which one of the following properties is shared by all three polygons in this diagram?  (A) Each polygon has 1 pair of parallel sides. (B) Each polygon has 1 pair of congruent sides. (C) Each polygon has 2 pairs of parallel sides. (D) Each polygon has 2 pairs of congruent. sides ____	B

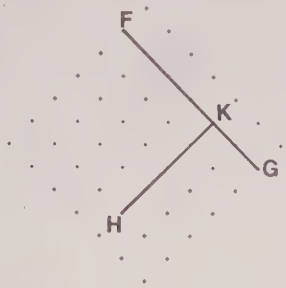
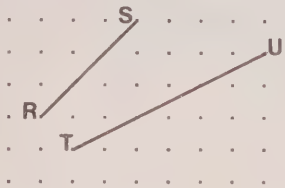
	Instrument	Correct Response
C2P 0403 DM	Which one of the following properties is shared by all three polygons in this diagram?  (A) Each polygon has 1 pair of parallel sides. (B) Each polygon has 1 pair of equal sides. (C) Each polygon has 2 pairs of parallel sides. (D) Each polygon has 2 pairs of equal sides. ____	A
C2P 0404 DR	Describe a common property of the plane figures shown below. _____	All simple closed curves, or 1 curved segment, or 0 straight segments

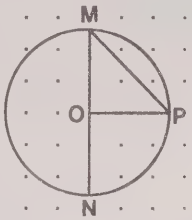
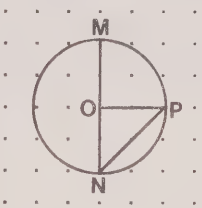
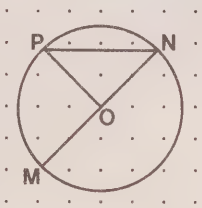
	Instrument	Correct Response
C2P 0405 DR	Describe two common properties of the plane figures shown below. _____ _____ _____	All simple closed curves, or 1 curved segment, or 1 straight segment
C2P 0406 DR	Describe three common properties of the plane figures shown below. _____ _____ _____	All simple closed curves, or 2 curved segments, or 2 straight segments

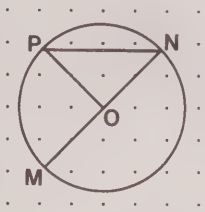
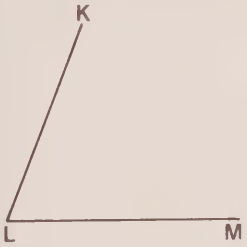
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Configuration	2-D Figures	Symbolic Notation	Skills

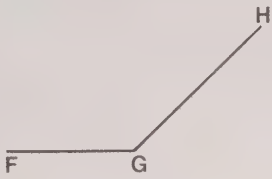
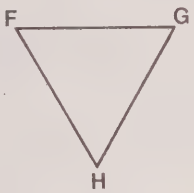
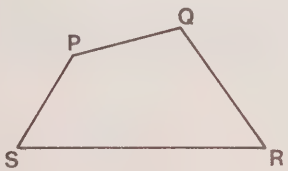
Objective — Given a labelled 2-D figure, the student will use symbolic notation to identify the figure or its component parts (e.g., vertices, sides, angles, line segments, rays).

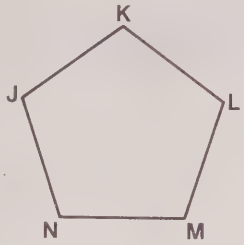
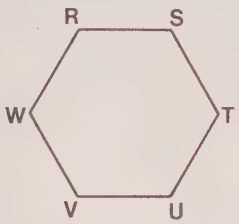
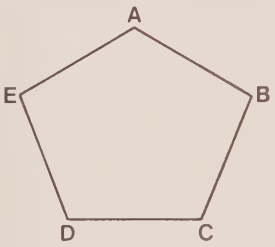
	Instrument	Correct Response
C2S 0101 DM	This diagram shows that  (A) MN is parallel to PQ (B) MN is perpendicular to PQ (C) MN is congruent to PQ (D) MN intersects PQ ____	D
C2S 0102 DM	This diagram shows that  (A) JK is perpendicular to LM (B) JK is congruent to LM (C) JK is parallel to LM (D) JK intersects LM ____	C

	Instrument	Correct Response
C2S 0103 DM	This diagram shows that  (A) HK crosses FG (B) HK is parallel to FG (C) HK is perpendicular to FG (D) HK is congruent to FG _____	C
C2S 0104 DM	This diagram shows that  (A) RS intersects TU (B) RS is perpendicular to TU (C) RS is not parallel to TU (D) RS is congruent to TU _____	C
C2S 0105 DM	This diagram shows that (A) XY intersects WZ (B) XY is perpendicular to WZ (C) XY is not parallel to WZ (D) XY is congruent to WZ _____	D

	Instrument	Correct Response
C2S 0106 DM	Name a radius of the circle with centre O shown below.  _____	OP, ON, or OM
C2S 0107 DR	Name a diameter of the circle with centre O shown.  _____	MN
C2S 0108 DR	Name an arc of the circle with centre O shown below.  _____	PM, PN, MN, or MPN

	Instrument	Correct Response
CR 1009 DR	Name a chord of the circle with centre O shown below.  _____	PN, MN
C2S 0110 DM	The measure of angle PQR is (A) 180° (B) 90° (C) less than 90° (D) between 90° and 180° ____	B
C2S 0111 DM	The measure of angle KLM is  (A) 180° (B) 90° (C) less than 90° (D) between 90° and 180° ____	C

	Instrument	Correct Response
C2S 0112 DM	The measure of angle FGH is  (A) 180° (B) 90° (C) less than 90° (D) between 90° and 180° ____	D
C2S 0113 DR	Name all the sides of triangle FGH  _____	FG, GH, HF
C2S 0114 DR	Name the sides of quadrilateral PQRS that meet at vertex R.  _____	QR and RS

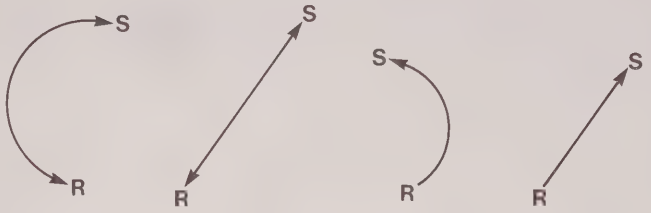
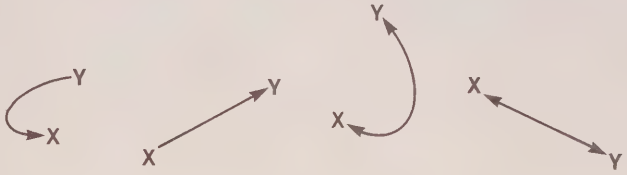
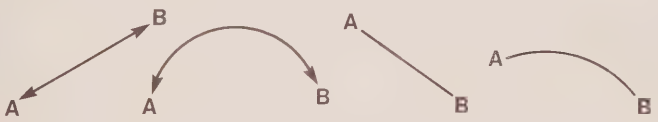
	Instrument	Correct Response
C2S 0115 DR	Name the side of pentagon JKLMN that is directly opposite to vertex M.  _____	JK
C2S 0116 DR	Name the side of polygon RSTUVW that is directly opposite to side TS.  _____	VW
C2S 0117 DR	Name all the diagonals of polygon ABCDE.  _____	AC, AD, BE, BD and EC

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Configuration	2-D Figures	Symbolic Notation	Understanding

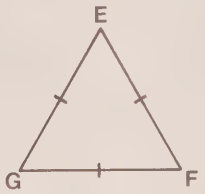
Objective

Given a description in symbolic notation of a 2-D figure or its component parts (e.g., vertices, sides, angles, line segments, rays), the student will identify the figure.

	Instrument	Correct Response
C2S 0201 DM	Which one of these diagrams is used to represent line KL? (A) (B) (C) (D) ____	C
C2S 0202 DM	Which one of these diagrams is used to represent line segment PQ? (A) (B) (C) (D) ____	D

	Instrument	Correct Response
C2S 0203 DM	Which one of these diagrams is used to represent the ray RS?  (A) (B) (C) (D) _____	D
C2S 0204 DM	Which one of these diagrams is used to represent the curve XY?  (A) (B) (C) (D) _____	C
C2S 0205 DM	Which one of these diagrams is used to represent the arc AB?  (A) (B) (C) (D) _____	D

	Instrument	Correct Response
C2S 0206 VS	Draw and label a quadrilateral PQRS that has side PQ equal to side PS.	
C2S 0207 VS	Draw and label a quadrilateral JKLM that has side JK equal to side JM and side LK equal to side LM.	
C2S 0208 VS	Draw and label a quadrilateral ABCD that has side AB parallel to CD.	

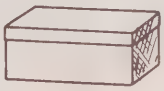
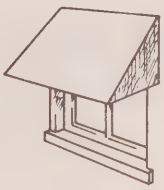
	Instrument	Correct Response
C2S 0209 VM	The measure of angle RST is 180°. It is called (A) an acute angle (B) an obtuse angle (C) a straight angle (D) a right angle _____	C
C2S 0210 VM	The measure of angle FGH is between 90° and 180°. It is called (A) a right angle (B) a straight angle (C) an obtuse angle (D) an acute angle _____	C
C2S 0211 VM	The measure of angle KLM is less than 90°. It is called (A) a right angle (B) a straight angle (C) an obtuse angle (D) an acute angle _____	D
C2S 0212 DR	What kind of triangle is EFG?  _____	Equilateral triangle

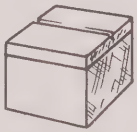
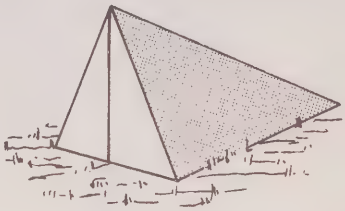
	Instrument	Correct Response
C2S 0213 VR	What is the most precise name for triangle XYZ if the measure of angle XYZ is 90°, the length of side XY is 8 cm, and the length of side YZ is 8 cm?	Right-angled isosceles triangle
C2S 0214 VR	What is the most precise name for triangle RST if the measure of angle RST is 74°, the measure of angle RTS is 42° and the measure of angle TRS 64°?	Acute-angled scalene triangle

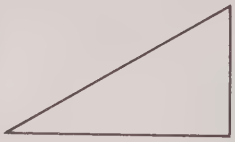
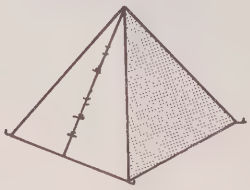
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Configuration	2-D Figures	Everyday Uses	Applications

Objective

Given a 2-D figure, or its name, the student will identify everyday objects having a specified face that is the same shape as the figure.

	Instrument	Correct Response
C2U 0101 DM	Each everyday object shown below has a shaded face. Which one of these faces is similar to the plane figure drawn on the right?  (A) (B)  (C) (D)	D

	Instrument	Correct Response
C2U 0102 DM	Each everyday object shown below has a shaded face. Which one of these faces is similar to the plane figure drawn on the right? (A)  (B) (C)  (D) ____	C
C2U 0103 DR	Name an everyday object with a face the same shape as this plane figure. _____	The front of a record jacket or...

	Instrument	Correct Response
C2U 0104 DR	Name an everyday object with a face the same shape as this plane figure.  _____	The side of a wheel chair ramp or ...
C2U 0105 DM	Which object has a shaded rectangular face? (A)  (B) (C) (D) _____	C

	Instrument	Correct Response
C2U 0106 DM	Which of these everyday objects has a shaded octagonal face? (A) (B) (C) (D) ____	B
C2U 0107 VR	Name an everyday object that has at least one face shaped like an isosceles triangle. _____	The side of a pyramid tent or ...
C2U 0108 VR	Name an everyday object that has at least one face shaped like a rectangle. _____	The side of a cardboard carton or ...

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Configuration	2-D Figures	Everyday Uses	Applications

Objective

Given an everyday object, its picture, or its name, the student will identify the 2-D figure that has the same shape as any specified face of the object.

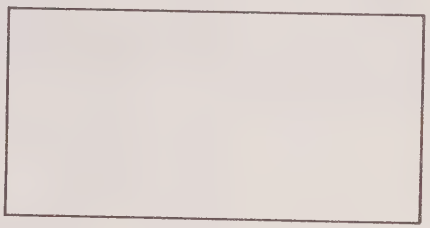
	Instrument	Correct Response
C2U 0201 DM	On the right is a drawing of a coin. Which one of the diagrams below represents the face that is shaded? (A) (B) (C) (D) ____	D
CR 0202 DM	On the right is a drawing of an everyday object. Which one of the diagrams below represents the face that is shaded? (A) (B) (C) (D) ____	C

	Instrument	Correct Response
C2U 0203 DR	Name the shape of the shaded face on the everyday object shown below. _____	Triangle or isosceles triangle
C2U 0204 VR	Name the 2-D figure that has the same shape as the bottom of a can of soup? _____	Circle
C2U 0205 VR	Name the 2-D figure that has the same shape as your protractor? _____	Semi-circle or, in some cases, a circle

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Configuration	1-D Figures	Representation	Skills

Objective — Given a 1-D figure, or its name, the student will identify the figure.

	Instrument	Correct Response
C1R 0101 DM	This diagram represents (A) a line (B) a ray (C) a line segment (D) a point ____	D
C1R 0102 DM	This diagram represents (A) a curve (B) a ray (C) a line (D) a line segment ____	D
C1R 0103 DM	Which diagram represents a ray? (A) (B) (C) (D) ____	A

	Instrument	Correct Response
C1R 0104 DM	Which diagram represents a line segment? (A) (B) (C) (D)	B
C1R 0105 VS	Draw a line segment inside the box. 	

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Configuration	1-D Figures	Properties	Skills

Objective — Given the name of a 1-D figure, the student will identify specific properties of the figure.

	Instrument	Correct Response
C1P 0101 VM	A ray has (A) 0 end points (B) 1 end point (C) 2 end points (D) none of the above _____	B
C1P 0102 VM	A line segment has (A) 0 end points (B) 1 end point (C) 2 end points (D) none of the above _____	C
C1P 0103 VM	A line has (A) 0 end points (B) 1 end point (C) 2 end points (D) none of the above _____	A

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Configuration	1-D Figures	Everday Uses	Understanding

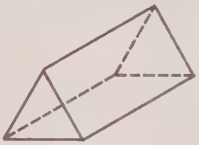
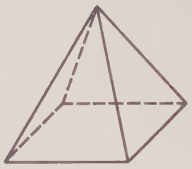
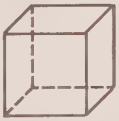
Objective — Given the name of a 1-D figure, the student will identify everyday objects having a specified edge that is the same shape as the figure.

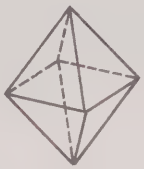
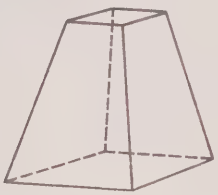
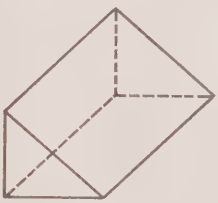
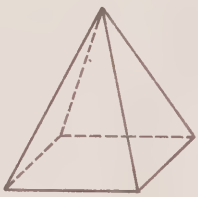
	Instrument	Correct Response
C1U 0101 VM	Which example best represents the concept of a ray? (A) the edge of a searchlight beam (B) the edge of a knife (C) the edge of a skyscraper (D) the edge of a road _____	A
C1U 0102 VM	Which example best represents the concept of a line segment? (A) a roll of picture frame wire (B) a coiled garden hose (C) a stretched rope (D) a loose piece of string _____	C

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	3-D Figures	Comparison	Skills

Objective

Given a set of models of 3-D figures, their pictures, or their names, the student will compare the figures with respect to a common specified property (e.g., number of faces, vertices, edges; symmetry; types of faces, edges).

	Instrument	Correct Response
R3C 0101 DR	Which one of the figures represented by these diagrams has the greater number of vertices?  Figure 1  Figure 2	Figure 1
R3C 0102 DR	Which one of the figures represented by these diagrams has the greater number of edges? Figure 1  Figure 2	Figure 2

	Instrument	Correct Response
R3C 0103 DR	Which one of the figures represented by these diagrams has the greater number of edges meeting at each vertex? Figure 1  Figure 2	Figure 1
R3C 0104 DR	Which figure has the greater number of pairs of parallel edges? Figure 1  Figure 2	Figure 2
R3C 0105 DR	Which one of the figures represented by these diagrams has the greater number of pairs of perpendicular edges?  Figure 1  Figure 2	Figure 1

	Instrument	Correct Response
R3C 0106 CM	Provide the student with this set of models: a cube, a square pyramid, a triangular prism, a tetrahedron. Ask, "Which one of these has the least number of faces?" (A) a cube (B) a square pyramid (C) a triangular prism (D) a tetrahedron _____	D
R3C 0107 VM	Which one of the following figures has the least number of faces? (A) a cube (B) a square pyramid (C) a triangular prism (D) a tetrahedron _____	D
R3C 0108 CM	Provide the student with models of the following: a sphere, a hemisphere, a cylinder, a cone. Ask, "Which one of these has the greatest number of flat surfaces?" (A) a sphere (B) a hemisphere (C) a cylinder (D) a cone _____	C
R3C 0109 VM	Which one of the following figures has the greatest number of flat surfaces? (A) a sphere (B) a hemisphere (C) a cylinder (D) a cone _____	C

	Instrument	Correct Response
R3C 0110 VR	Describe the edges of: (i) a cylinder _____ (ii) a triangular prism _____	 Curved Straight, or parallel
R3C 0111 VR	Describe the faces of a triangular prism. _____ _____ _____	 2 triangular faces, 3 rectangular faces
R3C 0112 VR	Describe the faces of a pyramid. _____ _____ _____	 Base may be triangular, square, rectangular, or ... other faces are always triangular,

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	3-D Figures	Comparison	Skills

Objective

Given a comparison of two or more 3-D figures in terms of a property (e.g., number of faces, vertices, edges; symmetry; types of faces, edges), the student will identify sets of figures that meet these criteria.

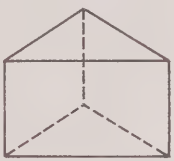
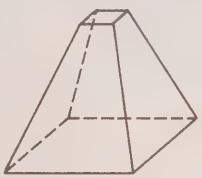
	Instrument	Correct Response
R3C 0201 VR	Name two 3-D figures that have different numbers of faces. 1. _____ 2. _____	Tetrahedron, triangular prism, cube, or ...
R3C 0202 VR	Name a 3-D figure that has all faces congruent. _____	Cube, regular tetrahedron, or ...
R3C 0203 VR	Name two 3-D figures that have different numbers of parallel faces. 1. _____ 2. _____	Cone, triangular prism, cuboid, pentagonal prism, or...

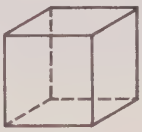
	Instrument	Correct Response
R3C 0204 VR	Name two 3-D figures that have the same number of pairs of perpendicular faces. 1. _____ 2. _____	Cube, cuboid, or ....

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	3-D Figures	Classification	Applications

Objective — Given a model or picture of a 3-D figure, the student will classify the properties (e.g., surface, edge, symmetry) of the figure.

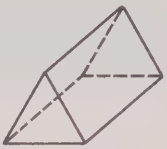
	Instrument	Correct Response
R3L 0101 CM	Provide the student with a model of a cylinder. Ask, "Which one of these statements does not apply to this figure?" (A) It has flat surfaces. (B) It has a curved surface. (C) It has straight edges. (D) It has curved edges. ____	C
R3L 0102 DM	Which one of these statements does not apply to the figure represented below? (A) The figure has flat surfaces. (B) The figure has a curved surface. (C) The figure has straight edges. (D) The figure has curved edges. ____	C

	Instrument	Correct Response
R3L 0103 CM	Provide the student with a model of a triangular prism with square faces. Ask, "Which one of these does not apply to this figure?" (A) It has square faces. (B) It has rectangular faces. (C) It has triangular faces. (D) It has circular faces. _____	D
R3L 0104 DM	Which one of these statements does not apply to the figure represented below?  (A) The figure has some rectangular faces. (B) The figure has some triangular faces. (C) The figure has some circular faces. (D) The figure has some square faces. _____	C
R3L 0105 DM	Which one of these statements does not apply to the figure represented below?  (A) The figure has congruent faces. (B) The figure has parallel faces. (C) The figure has perpendicular faces. (D) The figure has similar faces. _____	C

	Instrument	Correct Response
R3L 0106 CR	Provide the student with a model of a cube. Say, "List four different properties of this solid." 1. _____ 2. _____ 3. _____ 4. _____	Parallel faces, square faces, perpendicular edges, congruent edges, 9 planes of symmetry, or ...
R3L 0107 DR	List four different properties of the figure represented in the diagram.  1. _____ 2. _____ 3. _____ 4. _____	Parallel faces, square faces, perpendicular edges, congruent edges, 9 planes of symmetry or ...

	Instrument	Correct Response
R3L 0108 CR	Provide the student with a model of a regular tetrahedron. Say, "List three different properties of this solid." 1. _____ 2. _____ 3. _____	4 triangular faces, 4 congruent faces, 4 vertices, no parallel edges, plane symmetry, or ...
R3L 0109 DR	List three different properties of the figure represented in the diagram. 1. _____ 2. _____ 3. _____	4 triangular faces, 6 edges, 4 vertices, no parallel edges, plane symmetry, or ...
R3L 0110 CR	Provide the student with a model of a square-based pyramid. Say, "List three different properties of this solid." 1. _____ 2. _____ 3. _____	4 triangular faces, 1 square face, 5 vertices, parallel edges, plane symmetry, or ...

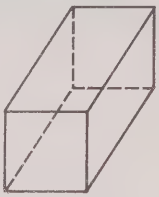
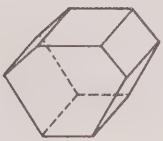
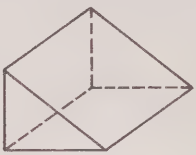
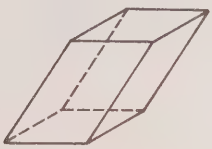
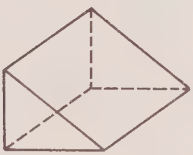
	Instrument	Correct Response
R3L 0111 DR	List three different properties of the figure represented in the diagram. 1. _____ 2. _____ 3. _____	4 triangular faces, 1 square face, 5 vertices, parallel edges, plane symmetry, or ....
R3L 0112 CR	Provide the student with a model of a triangular prism. Say, "List three different properties of this solid." 1. _____ 2. _____ 3. _____	2 triangular faces, 3 rectangular faces, 6 pairs of parallel edges, 6 vertices, or ...

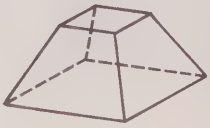
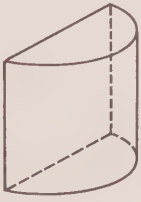
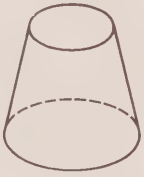
	Instrument	Correct Response
R3L 0113 DR	List three different properties of the figure represented in the diagram.  1. _____ 2. _____ 3. _____	2 triangular faces, 3 rectangular faces, 6 pairs of parallel edges, 6 vertices, or ...
R3L 0114 CR	Provide the student with a model of a cone. Say, "List three different properties of this solid." 1. _____ 2. _____ 3. _____	Flat surface, curved surface, vertex, or ...
R3L 0115 DR	List three properties of the figure represented in the diagram. 1. _____ 2. _____ 3. _____	One curved surface, one flat surface, one vertex, one curved edge, or ...

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	3-D Figures	Classification	Applications

Objective — Given a set of properties (e.g., surface, edges) for 3-D figures, the student will identify figures having these properties.

	Instrument	Correct Response
R3L 0201 DM	Which one of the figures represented below has a flat surface, a curved surface, and a vertex? (A) (B) (C) (D) ____	D

	Instrument	Correct Response
R3L 0202 DM	Which one of the figures represented below has square faces, rectangular faces, and hexagonal faces? (A) (B)  (C)  (D)  _____	C
R3L 0203 DM	Which one of the figures represented below has congruent faces, parallel faces, and perpendicular faces? (A)  (B) (C)  (D) _____	C

	Instrument	Correct Response
R3L 0204 DM	Which one of the figures represented below has similar faces, congruent faces, and parallel faces? (A) (B) (C) (D)  ____	D
R3L 0205 DM	Which one of the figures represented below has equal edges, parallel edges, and curved edges? (A) (B) (C)  (D)  ____	C

	Instrument	Correct Response
R3L 0206 CR	Provide the student with a set of models that include: a cone, a cube, a cuboid, a sphere, and a triangular pyramid. Say, "Select a solid that has square faces, rectangular faces, and congruent faces."	Cube, cuboid
R3L 0207 CR	Provide the student with a set of models that include: a cone, a cube, a cuboid, a sphere, and a triangular pyramid. Say, "Select a solid that has parallel edges, equal edges, and perpendicular edges."	Cuboid, cube, triangular prism

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	3-D Figures	Symmetry	Applications

Objective — Given types of symmetry (e.g., line, turn, plane), the student will identify everyday examples of objects having such symmetry.

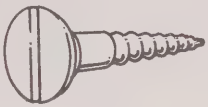
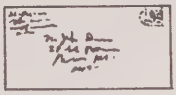
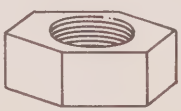
	Instrument	Correct Response
R3S 0101 DM	Which one of these team crests has line symmetry? (A) (B) (C) (D) ____	D
R3S 0102 VR	Give an example of an everyday object that has no symmetry. _____	Glove, hand, shoe, car, or ....
R3S 0103 VR	Give an example of an everyday object that has plane symmetry. _____	Box, ball, or ....

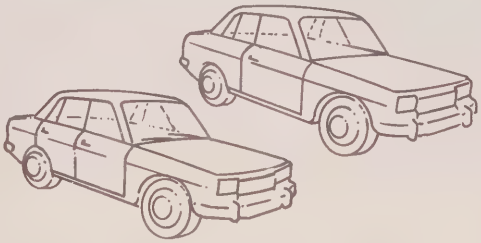
	Instrument	Correct Response
R3S 0104 DM	This everyday object has (A) no symmetry (B) turn symmetry (C) plane symmetry (D) both turn and plane symmetry ____	A
R3S 0105 DM	This everyday object has (A) no symmetry (B) turn symmetry (C) plane symmetry (D) both turn and plane symmetry ____	B
R3S 0106 DR	Is this everyday object symmetric? Check one |__| yes |__| no Explain _____ _____	Yes, it has plane symmetry

	Instrument	Correct Response
R3S 0107 DR	Is this everyday object symmetric? Check one ☐ yes ☐ no Explain _____ _____	Yes, it has plane symmetry

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	3-D Figures	Congruence	Applications

Objective — Given an everyday object, its picture, or its name, the student will identify congruent objects.

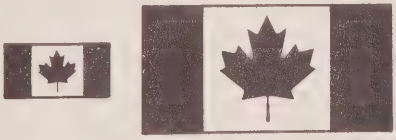
	Instrument	Correct Response
R3G 0101 DM	Which one of the everyday objects represented below does not have an exact duplicate (A)  (B) (C)  (D) _____	C
R3G 0102 DM	Which one of the everyday objects represented below does not have an exact duplicate? (A) (B) (C)  (D) _____	A

	Instrument	Correct Response
R3G 0103 DR	Are these pictures of two everyday objects congruent? |_| yes |_| no Why? _____	No, one is larger than the other
R3G 0104 DR	Are these pictures of two everyday objects congruent?  |_| yes |_| no Why? _____	No, one has four doors, the other has two
R3G 0105 VM	Which one of these everyday objects does <u>not</u> always have an exact duplicate? (A) a book (B) a magazine (C) a yearbook (D) a personal letter _____	D

	Instrument	Correct Response
R3G 0106 VM	Which one of these everyday objects does not always have an exact duplicate? (A) an electronic game (B) a stuffed toy (C) a pet cat (D) a fairy tale book _____	C
R3G 0107 VR	Name an everyday object that always has an exact duplicate. _____	Book, lamp pencil, or ....

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	3-D Figures	Similarity	Applications

Objective — Given an everyday object, its picture, or its name, the student will identify similar objects.

	Instrument	Correct Response
R3M 0101 DR	Are these two everyday objects similar? |_| yes |_| no Why? _____ _____ _____	No, one box is a cube, the other is a cuboid (or rectangular prism)
R3M 0102 DR	Are these two everyday objects similar?  |_| yes |_| no Why? _____ _____ _____	Yes, one flag is an enlargement of the other

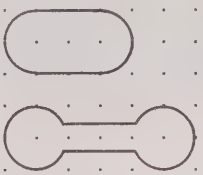
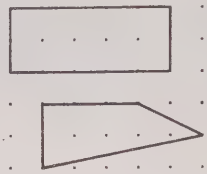
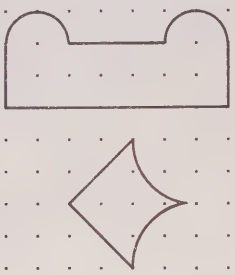
	Instrument	Correct Response
R3M 0103 VM	Which one of the following pairs of everyday objects is always similar? (A) two rocks that have different sizes (B) two pens that have different sizes (C) two hats that have different sizes (D) two dice that have different sizes _____	D
R3M 0104 VM	Which one of the following pairs of everyday objects is always similar? (A) two pieces of blank paper that have different sizes (B) two spelling books that have different sizes (C) two pencils that have different lengths (D) two photographs of different sizes that have been made from the same negative _____	D

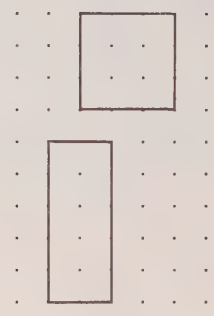
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Comparison	Understanding

Objective

Given a comparison of 2-D figures in terms of a property (e.g., number of sides, vertices, angles; symmetry; types of sides, angles), the student will identify pairs of figures that meet these criteria.

	Instrument	Correct Response
R2C 0101 DM	Which pair of figures has straight sides, opposite sides, and vertices? (A) (B) (C) (D) ____	C

	Instrument	Correct Response
R2C 0102 DM	Which pair of figures has straight sides, curved sides, and perpendicular sides? (A)  (B)  (C) (D)  ____	D

	Instrument	Correct Response
R2C 0103 DM	Which pair of figures has equal sides, parallel sides, and perpendicular sides? (A) (B) (C) (D)  ____	D

	Instrument	Correct Response
R2C 0104 DM	Which pair of figures has right angles, perimeter, and area? (A) (B) (C) (D) _____	C

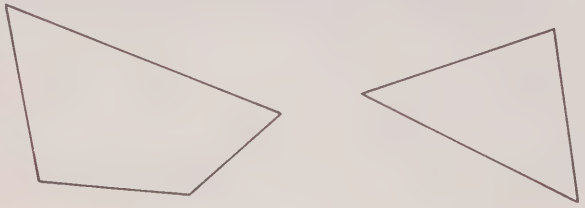
	Instrument	Correct Response
R2C 0105 VS	Draw two different figures, each having equal sides and parallel sides.	
R2C 0106 VS	Draw two different figures, each having equal sides and equal angles.	

	Instrument	Correct Response
R2C 0107 VM	Which pair of figures has different numbers of vertices, sides, and diagonals? (A) scalene triangle, isosceles triangle (B) rhombus, trapezoid (C) pentagon, parallelogram (D) kite, quadrilateral _____	C
R2C 0108 VM	Which pair of figures has the same number of sides but different numbers of pairs of parallel sides? (A) rhombus, parallelogram (B) kite, rectangle (C) trapezoid, parallelogram (D) square, rhombus _____	C
R2C 0109 VR	Name two figures that have different numbers of sides, vertices, and interior angles. 1. _____ 2. _____	Triangle and square, triangle and quadrilateral, or ...
R2C 0110 VR	Name two figures that have the same number of pairs of parallel sides and equal angles, but different numbers of lines of symmetry. 1. _____ 2. _____	Square and rectangle or ....

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Comparison	Understanding

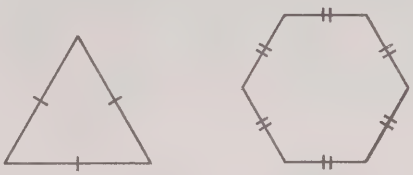
Objective

Given two 2-D figures, or their names, the student will compare a variety of properties (e.g., number of sides, vertices, angles; symmetry; types of sides, angles).

	Instrument	Correct Response
R2C 0201 DM	Which one of these statements is not true?  (A) Both figures have vertices. (B) Both figures have straight edges. (C) Both figures have interior angles. (D) Both figures have sides opposite each other. ____	D

	Instrument	Correct Response
R2C 0202 DM	Which one of these statements is <u>not</u> true? (A) Both figures have straight sides. (B) Both figures have curved sides. (C) Both figures have perpendicular sides. (D) Both figures have parallel sides. ____	C
R2C 0203 DM	Which one of these statements is <u>not</u> true? (A) Both figures have straight sides. (B) Both figures have congruent sides. (C) Both figures have perpendicular sides. (D) Both figures have parallel sides. ____	C

	Instrument	Correct Response
R2C 0204 DM	Which one of these statements is not true? (A) Both figures have perimeter. (B) Both figures have area. (C) Both figures have line symmetry. (D) Both figures have turn symmetry. _____	D
R2C 0205 DR	Name three properties that are shared by each of these figures. 1. _____ 2. _____ 3. _____	Parallel sides, equal sides, perpendicular sides, or...

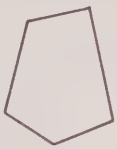
	Instrument	Correct Response
R2C 0206 DR	Name two properties that are common to each of these two figures.  1. _____ 2. _____	Equal sides, equal angles, turn symmetry, or ....
R2C 0207 DR	Name two properties that are common to each of these two figures. 1. _____ 2. _____	Straight sides, congruent sides, congruent angles, or ...
R2C 0208 DR	Name two properties that are common to each of these two figures. 1. _____ 2. _____	Curved sides, straight sides, parallel sides, or ...

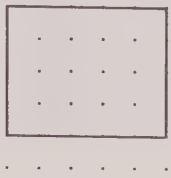
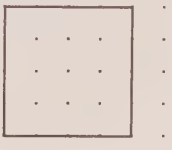
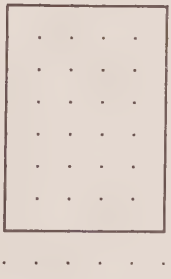
	Instrument	Correct Response
R2C 0209 VR	Name one way in which a quadrilateral differs from a pentagon. _____ _____	Pentagon has more sides, interior angles, and diagonals, or ...
R2C 0210 VR	Name one way in which a scalene triangle differs from an equilateral triangle. _____ _____	Equilateral triangle has more pairs of congruent sides and angles and more lines of symmetry
R2C 0211 VR	Name one way in which a square differs from a rhombus. _____ _____	Square has more pairs of perpendicular sides, more pairs of congruent angles, and more lines of symmetry

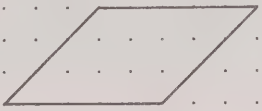
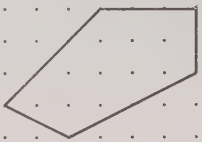
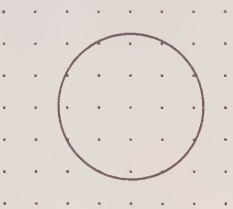
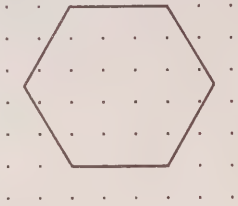
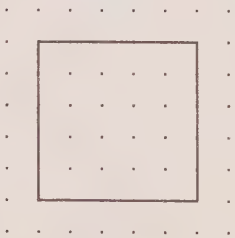
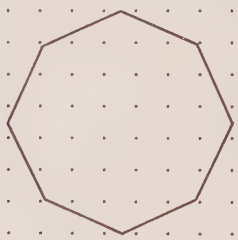
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Comparison	Skills

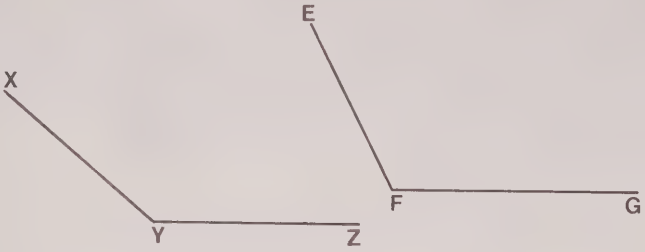
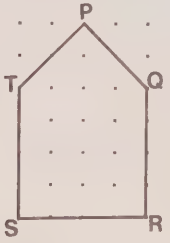
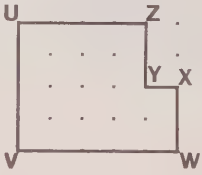
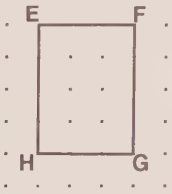
Objective

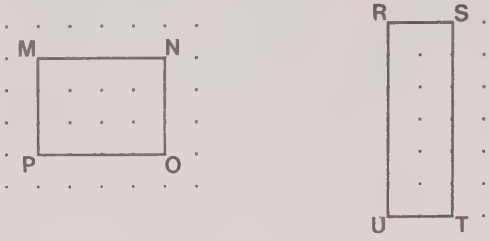
Given a set of 2-D figures, or their names, the student will compare the figures in terms of a specified property (e.g., number of sides, vertices, angles; perimeter; area; symmetry).

	Instrument	Correct Response
R2C 0301 DM	Which one of these figures has the greatest number of sides? (A) (B)  (C) (D) ____	D

	Instrument	Correct Response
R2C 0302 DM	Which one of these figures has the smallest area? (A)  (B) (C) (D) _____	C
R2C 0303 DM	Which one of these figures has the largest perimeter? (A)  (B) (C)  (D) _____	C

	Instrument	Correct Response
R2C 0304 DM	Which one of these figures has the greatest number of diagonals? (A)  (B)  (C) (D) ____	D
R2C 0305 DM	Which one of these figures has the greatest number of lines of symmetry? (A)  (B)  (C)  (D)  ____	A

	Instrument	Correct Response
R2C 0306 DR	Which angle is larger?  _____	Angle XYZ
R2C 0307 DR	Which of these figures has the greater number of vertices?   _____	Figure UVWXYZ
R2C 0308 DR	Which of these figures has the greater area?  _____	Figure JKLM

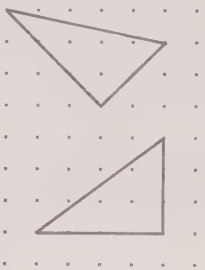
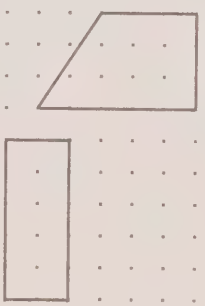
	Instrument	Correct Response
R2C 0309 DR	Which of these figures has the greater perimeter?  _____	Figure RSTU
R2C 0310 VM	Which one of the following figures has the least number of angles? (A) a triangle (B) a quadrilateral (C) a pentagon (D) a hexagon _____	A
R2C 0311 VM	Which one of the following figures has the greatest number of equal sides? (A) a quadrilateral (B) a trapezoid (C) a parallelogram (D) a rhombus _____	D
R2C 0312 VM	Which of these figures has the greatest number of pairs of parallel sides? (A) a regular quadrilateral (B) a regular pentagon (C) a regular hexagon (D) a regular heptagon _____	C

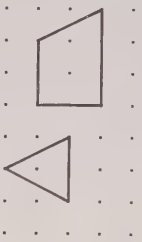
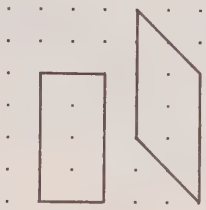
	Instrument	Correct Response
R2C 0313 VM	Which one of the following figures has the greatest number of lines of symmetry? (A) an equilateral triangle (B) a square (C) a regular hexagon (D) a regular octagon _____	D
R2C 0314 VR	Which has the greater number of sides, an octagon or a hexagon? _____	Octagon
R2C 0315 VR	How many diagonals can be drawn in a parallelogram? Number of diagonals _____	2

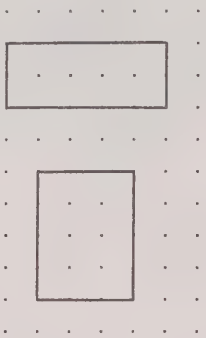
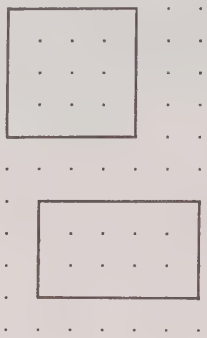
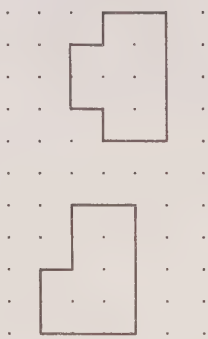
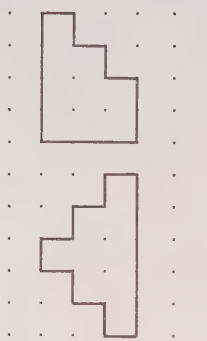
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Comparison	Skills

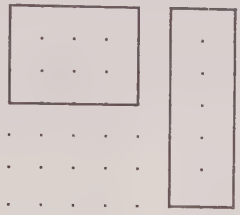
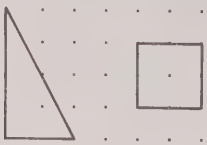
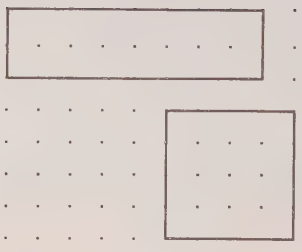
Objective

Given a comparison of two or more 2-D figures in terms of a specified property (e.g., number of sides, vertices, angles; perimeter; area; symmetry), the student will identify pairs of figures that meet these criteria.

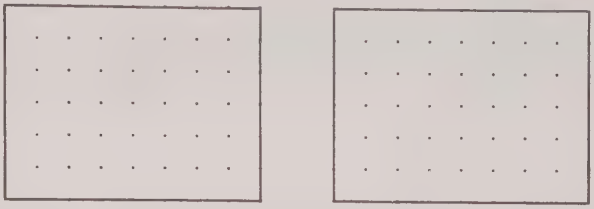
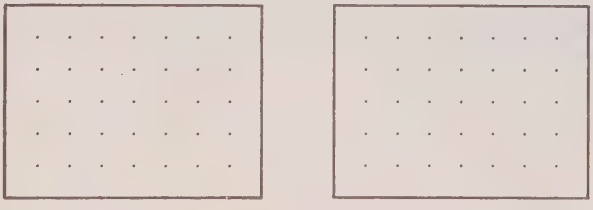
	Instrument	Correct Response
R2C 0401 DM	Which one of these diagrams shows two figures that have different numbers of vertices? (A)  (B) (C)  (D) ____	B

	Instrument	Correct Response
R2C 0402 DM	Which one of these diagrams shows two figures that have different numbers of equal sides? (A) (B)  (C)  (D) ____	D

	Instrument	Correct Response
R2C 0403 DM	Which one of these diagrams shows two figures that have different perimeters? (A)  (B)  (C)  (D)  _____	D

	Instrument	Correct Response
R2C 0404 DM	Which one of these diagrams shows two figures that have different areas? (A)  (B)  (C) (D)  _____	C

	Instrument	Correct Response
R2C 0405 VS	Draw any polygon in Box A. Draw another polygon with a greater number of sides in Box B. Box A Box B	
R2C 0406 VS	Draw any angle in Box A. Draw a larger angle in Box B. Box A Box B	

	Instrument	Correct Response
R2C 0407 VS	Draw any polygon in Box A. Draw another polygon with a smaller perimeter in Box B.  Box A Box B	
R2C 0408 VS	Draw any polygon in Box A. Draw another polygon with greater area in Box B.  Box A Box B	
R2C 0409 VM	Which one of these lists names two figures that have different numbers of angles? (A) isosceles triangle, equilateral triangle (B) quadrilateral, trapezoid (C) rhombus, rectangle (D) parallelogram, triangle _____	D

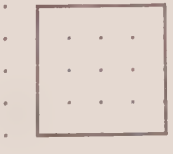
	Instrument	Correct Response
R2C 0410 VM	Which one of these lists names two figures that have different kinds of sides? (A) quadrilateral, triangle (B) parallelogram, pentagon (C) equilateral triangle, square (D) octagon, circle _____	D
R2C 0411 VM	Which one of these lists names two figures that have the same number of pairs of parallel sides? (A) quadrilateral, triangle (B) parallelogram, square (C) trapezoid, rectangle (D) rhombus, kite _____	B
R2C 0412 VR	Name two 2-D figures that have different numbers of vertices. 1. _____ 2. _____	Triangle, quadrilateral, or ...
R2C 0413 VR	Name two 2-D figures that have the same number of sides. 1. _____ 2. _____	Square, rectangle, quadrilateral, or ...

	Instrument	Correct Response
R2C 0414 VR	Name two 2-D figures that have different numbers of equal angles? 1. _____ 2. _____	Isosceles triangle, equilateral triangle, or ...
R2C 0415 VR	Name two 2-D figures that have different numbers of lines of symmetry. 1. _____ 2. _____	Equilateral triangle, square, or ...

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Classification	Understanding

Objective — Given a 2-D figure, or its name, the student will classify the figure according to various properties (e.g., dimension; curved or straight; number of sides; types of sides, angles).

	Instrument	Correct Response
R2L 0101 DM	Which one of these does not describe the figure shown below? (A) a 2-D figure (B) an open figure (C) an angle (D) a right angle ____	D
R2L 0102 DM	Which one of these does not describe the figure shown below? (A) a point (B) a closed figure (C) a curve (D) a circle ____	A
R2L 0103 DM	Which one of these does not describe the figure shown below? (A) a plane (B) an open figure (C) a polygon (D) an equilateral triangle ____	B

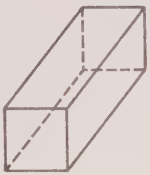
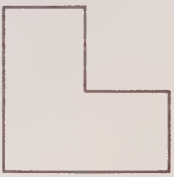
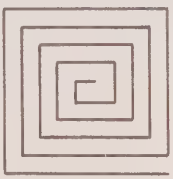
	Instrument	Correct Response
R2L 0104 DM	Which one of these does <u>not</u> describe the figure shown below? (A) a 2-D figure (B) a polygon (C) a quadrilateral (D) a parallelogram ____	D
R2L 0105 DM	Which one of these does <u>not</u> describe the figure shown below? (A) a polygon (B) a quadrilateral (C) a square (D) a rhombus ____	C
R2L 0106 DR	Give two different names for the figure shown below. 1. _____ 2. _____	Polygon, triangle, isosceles triangle
R2L 0107 DR	Give three different names for the figure shown below.  1. _____ 2. _____ 3. _____	Polygon, parallelogram, quadrilateral, square, or ...

	Instrument	Correct Response
R2L 0108 VM	Which one of these does <u>not</u> describe an angle? (A) a plane figure (B) two rays with a common end point (C) a simple figure (D) a closed figure _____	D
R2L 0109 VM	Which one of these statements is false? (A) A triangle is a 3-D figure. (B) A triangle is a closed figure. (C) A triangle is a simple figure. (D) A triangle is a polygon. _____	A
R2L 0110 VM	Which one of these statements is false? (A) A parallelogram is a plane figure. (B) A parallelogram is a polygon. (C) A parallelogram is a trapezoid. (D) A parallelogram is a quadrilateral. _____	C
R2L 0111 VM	Which one of these statements is false? (A) A rectangle is a parallelogram. (B) A rectangle is a polygon. (C) A rectangle is a square. (D) A rectangle is a quadrilateral. _____	C
R2L 0112 VR	Give one different name for a parallelogram. _____	Polygon, quadrilateral, or ...

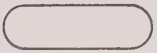
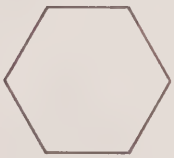
	Instrument	Correct Response
R2L 0113 VR	Give two different names for an equilateral triangle. 1. _____ 2. _____	2-D figure, polygon, regular figure, or ...
R2L 0114 VR	Give three different names for a rhombus. 1. _____ 2. _____ 3. _____	Polygon, quadrilateral, parallelogram, or ...

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Classification	Understanding

Objective — Given a set of classifications (e.g., dimension; curved or straight; number of sides; types of sides, angles) for 2-D figures, the student will identify one or more figures that meet these criteria.

	Instrument	Correct Response
R2L 0201 DM	Which one of the figures shown below can be classified as a plane figure and a closed figure as well as a polygon? (A)  (B)  (C)  (D) ____	B

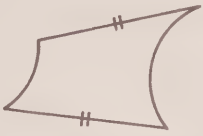
	Instrument	Correct Response
R2L 0202 DM	Which one of the figures shown below can be classified as a plane figure and an open figure, as well as a curved figure? (A) (B) (C) (D) ____	C
R2L 0203 DM	Which one of the figures shown below can be classified as a closed figure and a polygon, as well as an isosceles triangle? (A) (B) (C) (D) ____	C

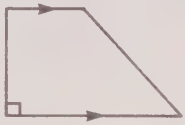
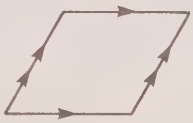
	Instrument	Correct Response
R2L 0204 DM	Which one of the figures shown below can be classified as a polygon and a quadrilateral, as well as a parallelogram? (A) (B) (C)  (D) ____	D
R2L 0205 DM	Which one of the figures shown below can be classified as a polygon and a regular figure, as well as a quadrilateral? (A)  (B) (C) (D) ____	D

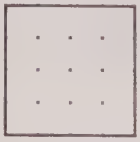
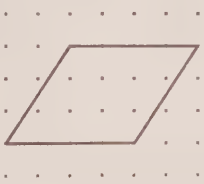
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Classification	Applications

Objective

Given a 2-D figure, or its name, the student will classify the properties (e.g., types of sides, angles; symmetry) of the figure.

	Instrument	Correct Response
R2L 0301 DM	Which one of these statements does not apply to the figure shown below? (A) The figure has straight sides. (B) The figure has curved sides. (C) The figure has equal sides. (D) The figure has parallel sides. ____	B
R2L 0302 DM	Which one of these statements does not apply to the figure shown below?  (A) The figure has straight sides. (B) The figure has curved sides. (C) The figure has equal sides. (D) The figure has parallel sides. ____	D

	Instrument	Correct Response
R2L 0303 DM	Which one of these statements does <u>not</u> apply to the figure shown below? (A) The figure has straight sides. (B) The figure has curved sides. (C) The figure has equal sides. (D) The figure has parallel sides. _____	C
R2L 0304 DM	Which one of these statements does <u>not</u> apply to the figure shown below?  (A) The figure has straight sides. (B) The figure has equal sides. (C) The figure has parallel sides. (D) The figure has perpendicular sides. _____	B
R2L 0305 DM	Which one of these statements does <u>not</u> apply to the figure shown below?  (A) The figure has straight sides. (B) The figure has equal sides. (C) The figure has parallel sides. (D) The figure has perpendicular sides. _____	D

	Instrument	Correct Response
R2L 0306 DR	List three properties of the figure shown below.  1. _____ 2. _____ 3. _____	Parallel sides, right angles, equal sides, 4 lines of symmetry, or ...
R2L 0307 DR	List three properties of the figure shown below. 1. _____ 2. _____ 3. _____	Equal sides, equal angles, straight sides, 3 lines of symmetry, or ....
R2L 0308 DR	List three properties of the figure shown below.  1. _____ 2. _____ 3. _____	Parallel sides, opposite sides equal, opposite angles equal, no symmetry, or ...
R2L 0309 VM	Which one of these statements does <u>not</u> apply to all isosceles triangles? (A) The figure has perpendicular sides. (B) The figure has straight sides. (C) The figure has equal sides. (D) The figure has equal angles. _____	A

	Instrument	Correct Response
R2L 0310 VM	Which one of these statements does not apply to all regular pentagons? (A) The figure has straight sides. (B) The figure has equal sides. (C) The figure has parallel sides. (D) The figure has equal angles. _____	C
R2L 0311 VM	Which one of these statements does not apply to all parallelograms? (A) The figure has parallel sides. (B) The figure has line symmetry. (C) The figure has equal sides. (D) The figure has turn symmetry. _____	B
R2L 0312 VR	List three different properties of a rectangle. 1. _____ 2. _____ 3. _____ 4. _____	Opposite sides equal, opposite sides parallel, all angles right angles, 2 lines of symmetry, or ...
R2L 0313 VR	List two properties of an isosceles triangle. 1. _____ 2. _____	2 equal sides, 2 equal angles, straight sides, 1 line of symmetry, or ...

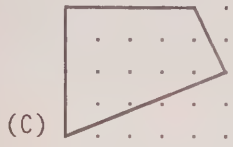
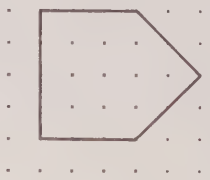
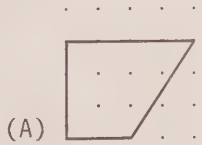
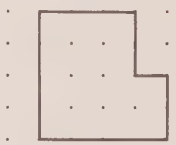
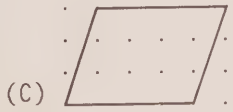
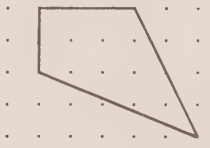
	Instrument	Correct Response
R2L 0314 VR	List two properties of a rhombus. 1. _____ 2. _____	4 equal sides, 2 pairs of equal angles, 2 lines of symmetry, or ...
R2L 0315 VR	List two properties of a kite. 1. _____ 2. _____	2 pairs of equal sides, 2 pairs of equal angles, 1 line symmetry, or ...
R2L 0316 VR	List two properties of a scalene triangle. 1. _____ 2. _____	Straight sides, 3 sides, sum of interior angles is 180°, no sides equal in length, no symmetry, or ...

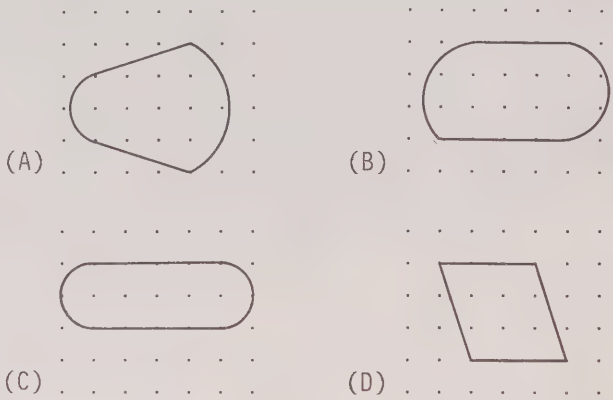
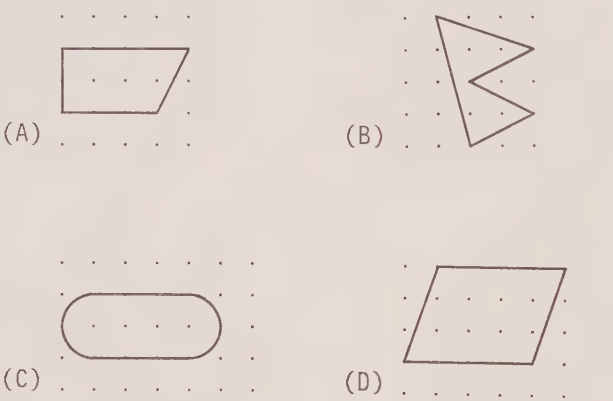
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Classification	Applications

Objective

Given a set of properties (e.g., types of side, angle; symmetry) for 2-D figure, the student will identify figures having these properties.

	Instrument	Correct Response
R2L 0401 DM	Which one of the figures shown below has straight sides, curved sides, and equal sides? (A) (B) (C) (D)	C

	Instrument	Correct Response
R2L 0402 DM	Which one of the figures shown below has straight sides, equal sides, and parallel sides? (A) (B)  (C)  (D) ____	D
R2L 0403 DM	Which one of the figures shown below has equal sides, parallel sides, and perpendicular sides?  (A)  (B)  (C)  (D) ____	B

	Instrument	Correct Response
R2L 0404 DM	Which one of the figures shown below has curved sides, equal sides, and parallel sides?  ____	C
R2L 0405 DM	Which one of the figures shown below has equal sides, parallel sides, and equal angles?  ____	D

	Instrument	Correct Response
R2L 0406 VS	Draw a figure which has a pair of equal sides and a pair of equal angles.	
R2L 0407 VS	Draw a figure which has a pair of equal sides and a pair of parallel sides.	
R2L 0408 VS	Draw two different kinds of figures, each having both parallel sides and perpendicular sides.	
R2L 0409 VS	Draw two different figures, each having curved sides, straight sides, and perpendicular sides.	

	Instrument	Correct Response
R2L 0410 VS	Draw two different figures, each having equal sides, equal angles, and line symmetry.	
R2L 0411 VM	Which one of the following figures always has pairs of equal sides and right angles? (A) an equilateral triangle (B) an isosceles triangle (C) a rectangle (D) a pentagon _____	C
R2L 0412 VM	Which one of the following figures always has equal sides, equal angles, and parallel sides? (A) an equilateral triangle (B) a regular pentagon (C) a quadrilateral (D) a regular hexagon _____	D
R2L 0413 VM	Which one of the following figures always has equal sides, equal angles, and perpendicular sides? (A) an octagon (B) a right-angled triangle (C) a parallelogram (D) a square _____	D

	Instrument	Correct Response
R2L 0414 VM	Which one of the following figures always has parallel sides, perpendicular sides, and diagonals that intersect at right angles? (A) a rhombus (B) a square (C) a kite (D) a rectangle _____	B
R2L 0415 VM	Which one of the following figures always has line symmetry, turn symmetry, and no straight sides? (A) a semi-circle (B) a square (C) a circle (D) an equilateral triangle _____	C
R2L 0416 VR	Name two different figures that have both equal sides and equal angles. 1. _____ 2. _____	Equilateral triangle, square, regular hexagon, or ...
R2L 0417 VR	Name two different figures that have both equal sides and parallel sides. 1. _____ 2. _____	Parallelogram, rhombus, square, or ...

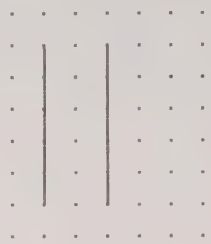
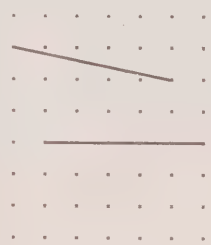
	Instrument	Correct Response
R2L 0418 VR	Name two different figures that have both equal sides and perpendicular sides. 1. _____ 2. _____	Rectangle, square, right-angled isosceles triangle, or ...
R2L 0419 VR	Name two different figures that have equal sides, equal angles, and diagonals that intersect at right angles. 1. _____ 2. _____	Square, kite, rhombus, or ...
R2L 0420 VR	Name two different figures that have line symmetry, turn symmetry, and no right angles. 1. _____ 2. _____	Equilateral triangle, regular hexagon, regular octagon, or ...

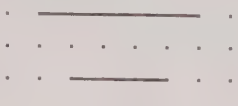
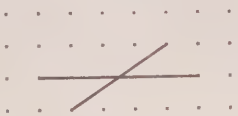
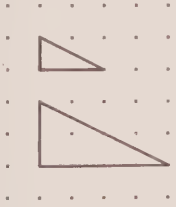
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Classification	Applications

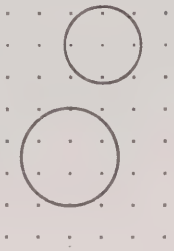
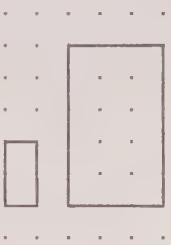
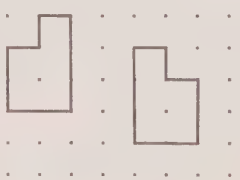
Objective

Given diagrams of 2-D figures, the student will classify the figures according to various relationships (e.g., parallelism, perpendicularity, congruence, similarity).

	Instrument	Correct Response
R2L 0501 DM	This diagram shows (A) parallel line segments (B) perpendicular line segments (C) intersecting lines which are not perpendicular (D) line segments which are neither parallel nor intersecting ____	B
R2L 0502 DM	This diagram shows (A) parallel line segments (B) perpendicular line segments (C) intersecting line segments which are not perpendicular (D) line segments which are neither parallel nor intersecting ____	C

	Instrument	Correct Response
R2L 0503 DM	This diagram shows  (A) parallel line segments (B) perpendicular lines (C) intersecting lines which are not perpendicular (D) lines which are neither parallel nor intersecting	A
R2L 0504 DM	This diagram shows (A) parallel line segments (B) intersecting line segments which are not perpendicular (C) non-intersecting line segments which are perpendicular (D) non-intersecting line segments which are not perpendicular	D
R2L 0505 DM	This diagram shows  (A) parallel line segments (B) intersecting line segments (C) non-intersecting line segments which are perpendicular (D) non-intersecting line segments which are not parallel	D

	Instrument	Correct Response
R2L 0506 DR	Describe the relationship between these two line segments.  _____ _____	Parallel line segments
R2L 0507 DR	Describe the relationship between these two line segments. _____ _____	Perpendicular line segments
R2L 0508 DR	Describe the relationship between these two line segments.  _____ _____	Intersecting line segments (not perpendicular)
R2L 0509 DM	This diagram shows  (A) congruent figures only (B) similar but non-congruent figures (C) neither congruent nor similar figures (D) both congruent and similar figures ____	B

	Instrument	Correct Response
R2L 0510 DM	This diagram shows  (A) congruent figures (B) similar but non-congruent figures (C) neither congruent nor similar figures (D) both congruent and similar figures ____	B
R2L 0511 DM	This diagram shows  (A) congruent figures (B) similar but non-congruent figures (C) neither congruent nor similar figures (D) both congruent and similar figures ____	C
R2L 0512 DR	Describe the relationship between these figures.  _____ _____	The figures are congruent

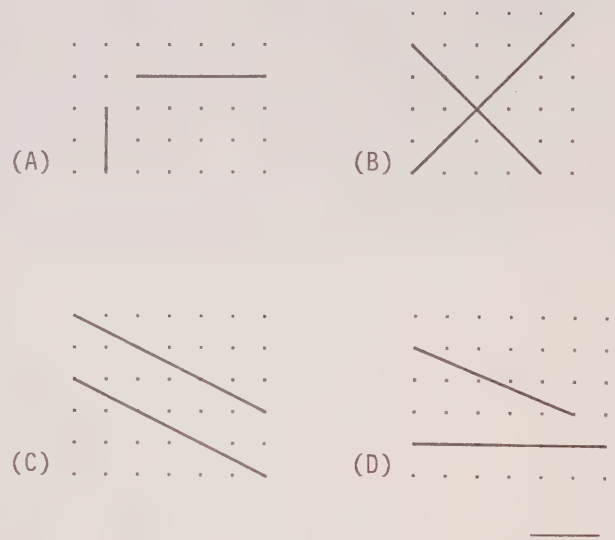
E

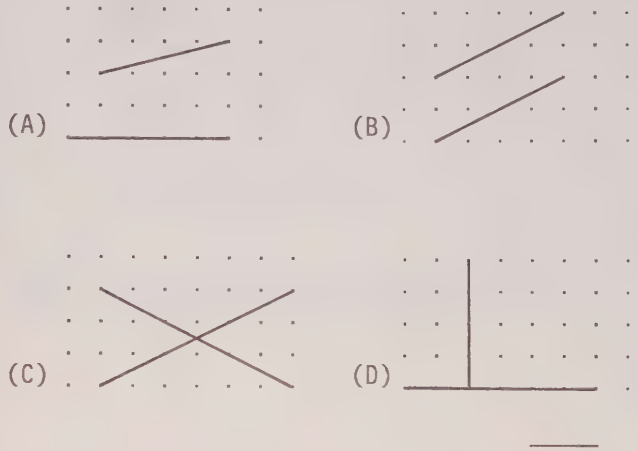
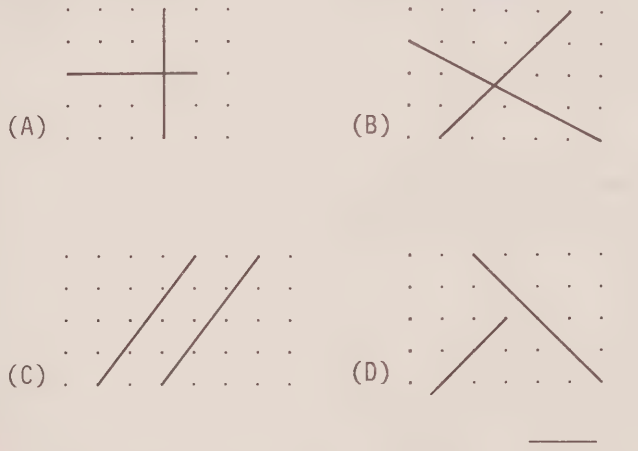
	Instrument	Correct Response
R2L 0513 DR	Describe the relationship between these figures. _____ _____	The figures are similar, one is the enlargement of another
R2L 0514 DR	Describe the relationship between these figures. _____ _____ _____ _____ _____	Both have right angles, or the area of the triangle is one-half the area of the square, or ...

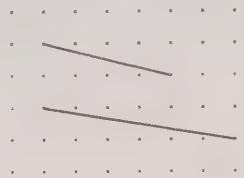
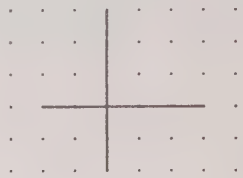
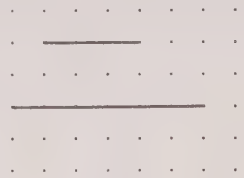
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Classification	Applications

Objective

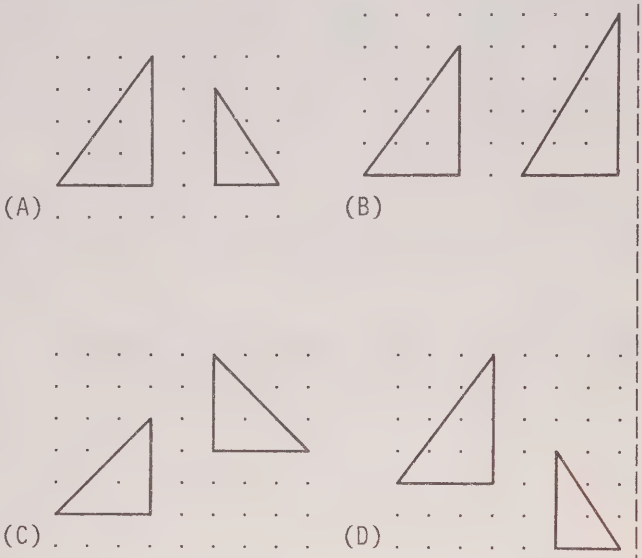
Given a classification (e.g., parallelogram, perpendicularity, congruence, similarity) for two related 2-D figures, the student will identify one or more pairs of figures that meet these criteria.

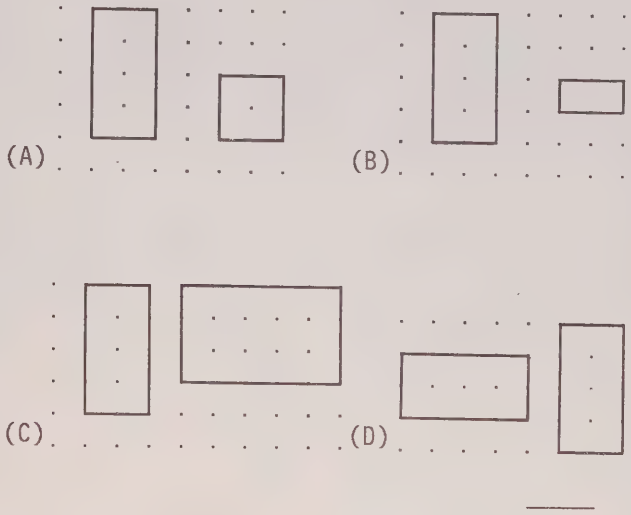
	Instrument	Correct Response
R2L 0601 DM	Which one of these diagrams shows a pair of parallel line segments?  	C

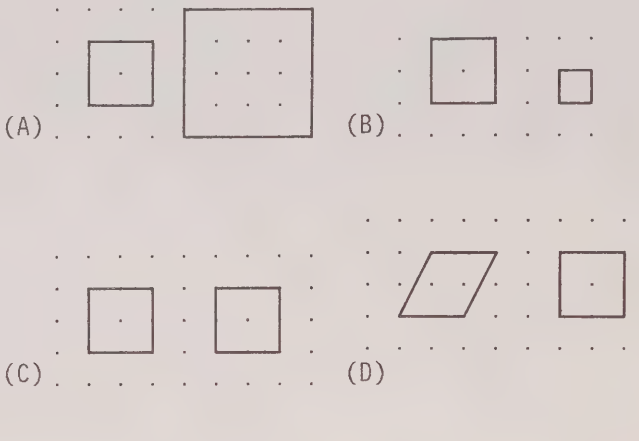
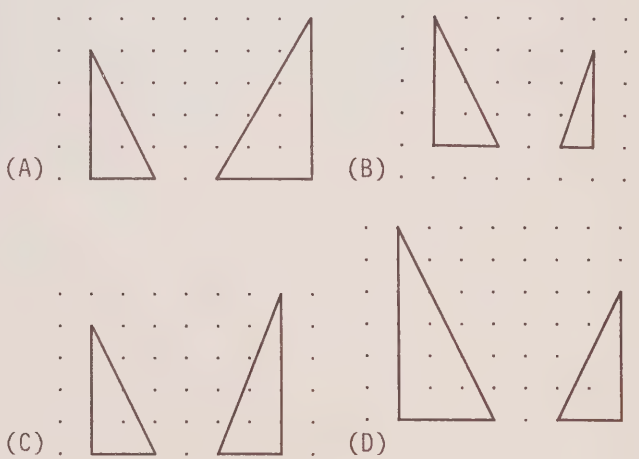
	Instrument	Correct Response
R2L 0602 DM	Which one of these diagrams shows a pair of perpendicular line segments?  	D
R2L 0603 DM	Which one of these diagrams shows a pair of intersecting line segments that are not perpendicular?  	B

	Instrument	Correct Response
R2L 0604 DM	Which one of these diagrams shows a pair of non-intersecting line segments that are perpendicular? (A)  (B)  (C)  (D)	D
R2L 0605 VS	Draw a pair of line segments that are perpendicular to each other.	
R2L 0606 VS	Draw a pair of line segments that are parallel to each other.	

	Instrument	Correct Response
R2L 0607 VS	Draw a pair of line segments that are perpendicular to each other but do not intersect.	
R2L 0608 VS	Draw a pair of line segments that intersect each other but are not perpendicular.	
R2L 0609 VS	Draw a pair of line segments that do not intersect each other and are not parallel to each other.	

	Instrument	Correct Response
R2L 0610 DM	Which one of these diagrams shows a pair of congruent figures?  	C

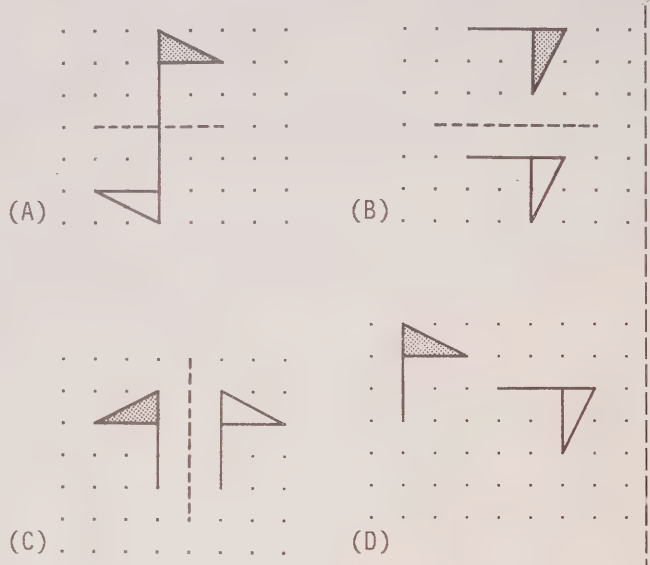
	Instrument	Correct Response
R2L 0611 DM	Which one of these diagrams shows a pair of similar but <u>not</u> congruent figures?  	B

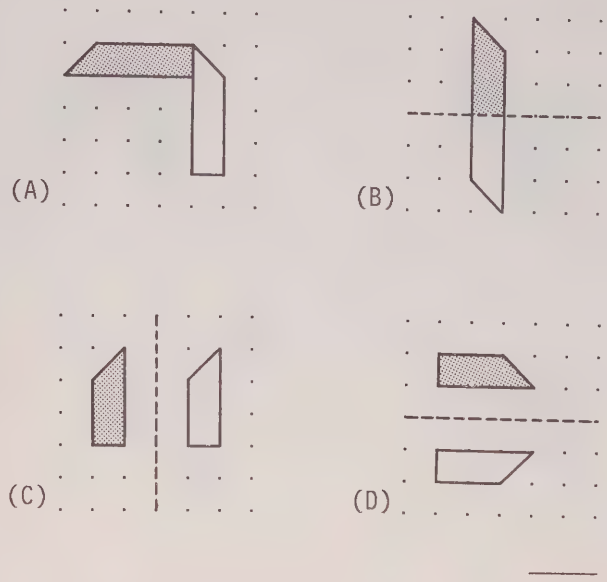
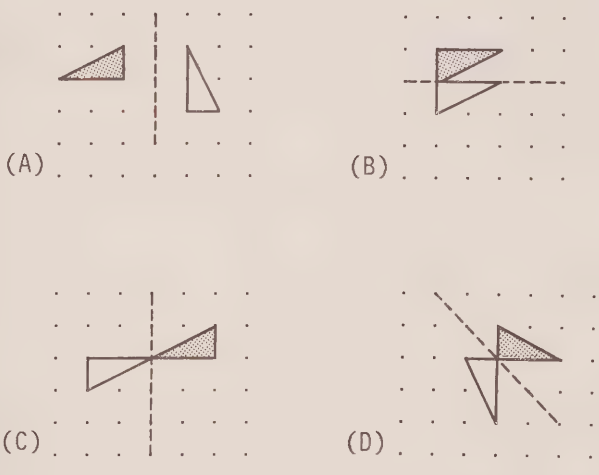
	Instrument	Correct Response
R2L 0612 DM	Which one of these diagrams shows a pair of neither congruent nor similar figures?  ____	D
R2L 0613 DM	Which one of these diagrams shows a pair of similar figures?  ____	D

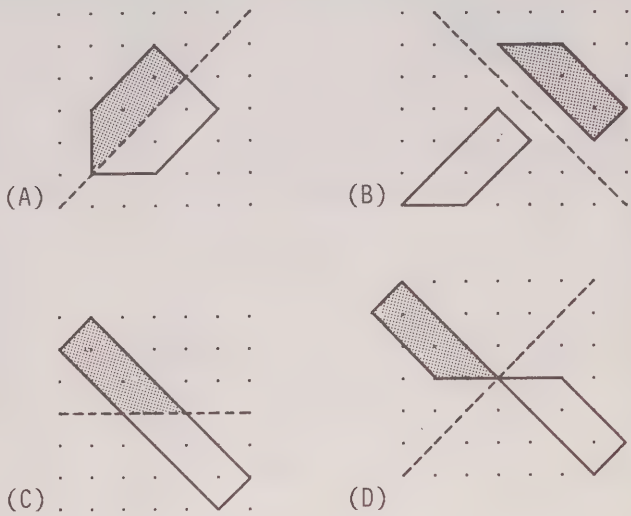
	Instrument	Correct Response
R2L 0614 VS	Draw a pair of congruent figures.	
R2L 0615 VS	Draw a pair of similar but not congruent figures.	
R2L 0616 VS	Draw a pair of figures that are neither congruent nor similar.	

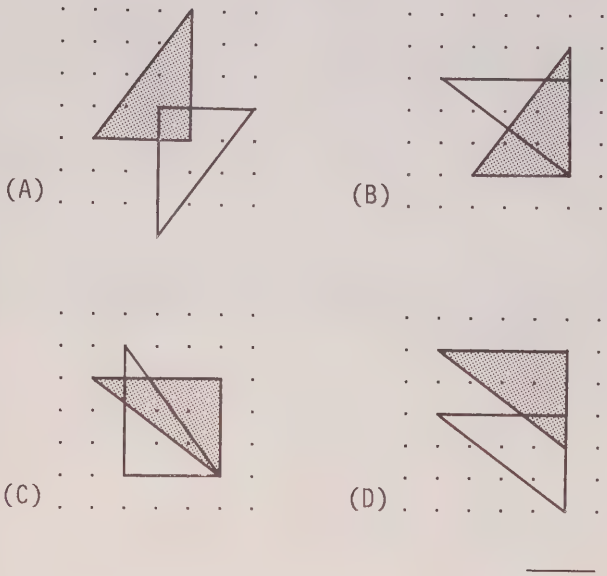
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Transformations	Understanding

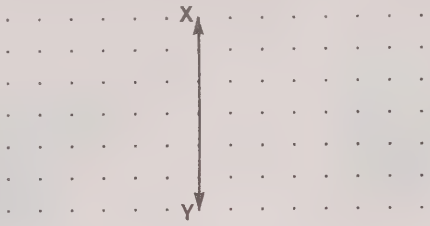
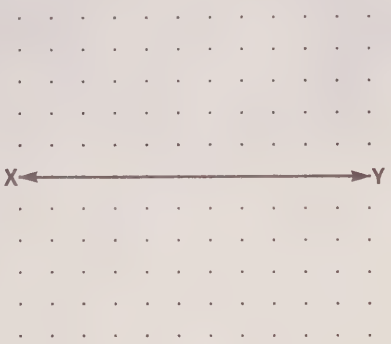
Objective — Given a motion (flip, slide, or turn), the student will identify two 2-D figures that illustrate the motion.

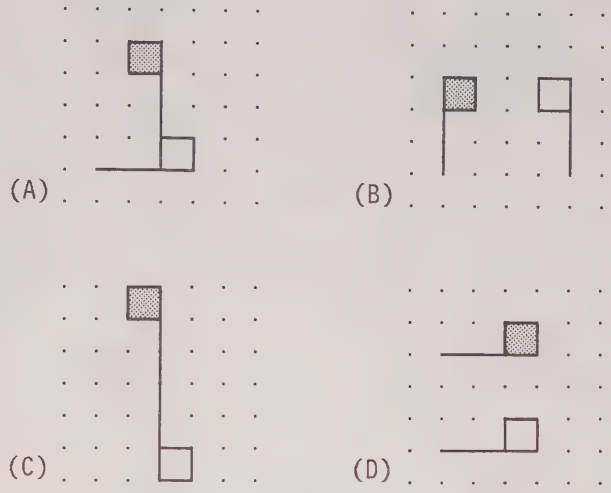
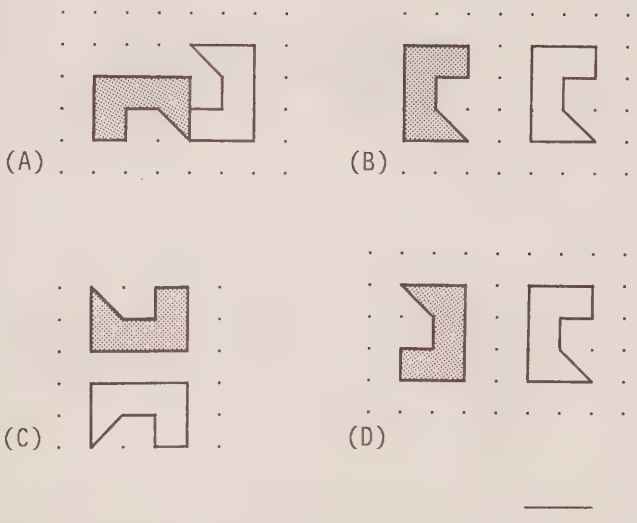
	Instrument	Correct Response
R2T 0101 DM	Which one of these diagrams shows a flip?  	C

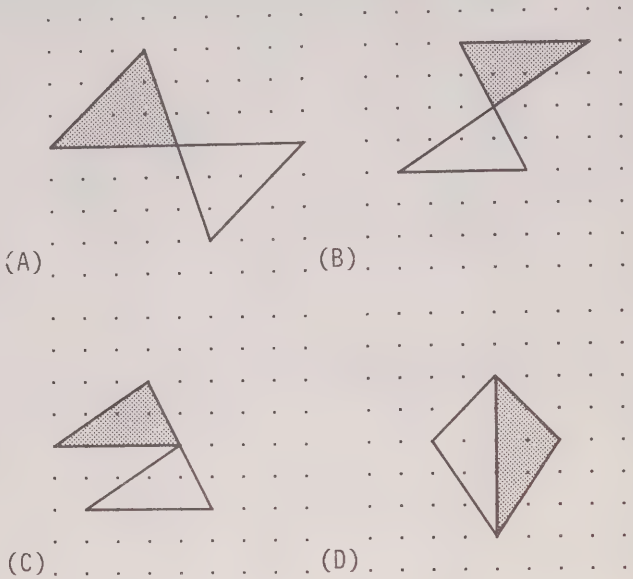
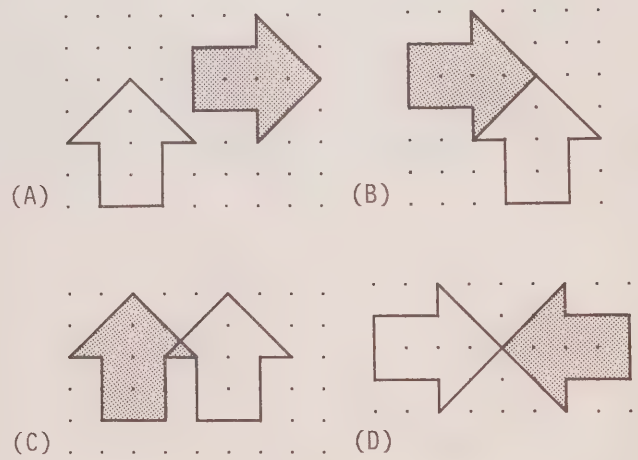
	Instrument	Correct Response
R2T 0102 DM	Which one of these diagrams shows a flip?  ____	D
R2T 0103 DM	Which one of these diagrams shows a flip?  ____	D

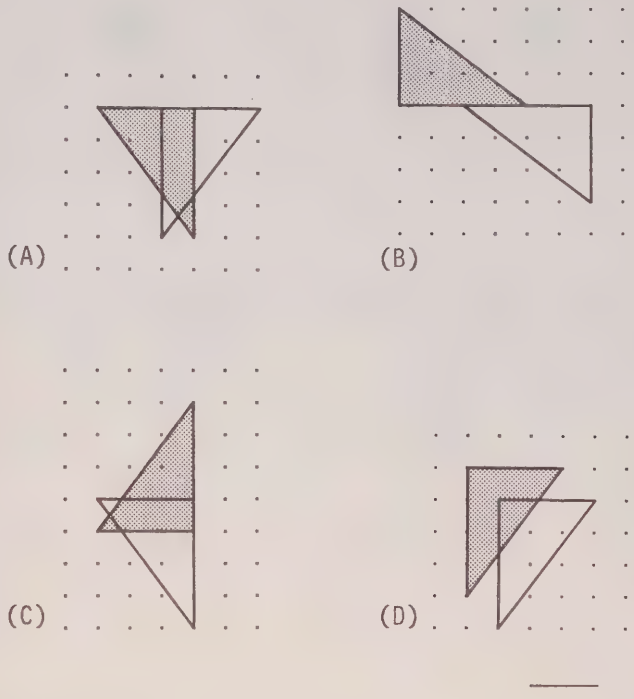
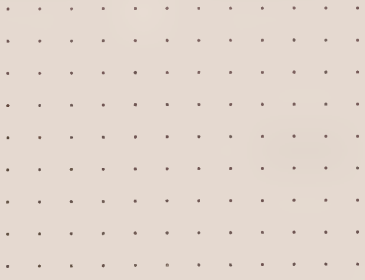
	Instrument	Correct Response
R2T 0104 DM	Which one of these diagrams shows a flip?  ____	A

	Instrument	Correct Response
R2T 0105 DM	Which one of these diagrams shows a flip?  (A) (B) (C) (D) ____	C

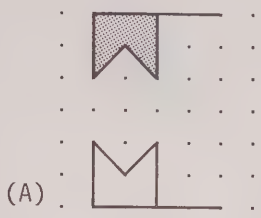
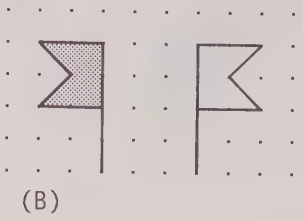
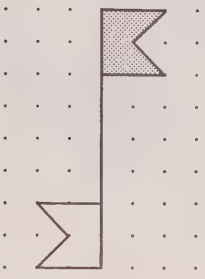
	Instrument	Correct Response
R2T 0106 DS	Draw a triangle and shade it. Draw the image so that line XY is the flip line. 	
R2T 0107 DS	Draw a quadrilateral and shade it. Draw the image of that quadrilateral so that line XY is the flip line. 	
R2T 0108 DS	Draw a triangle and shade it. Draw the image of that triangle so that line XY is the flip line and the two triangles have a common vertex.	

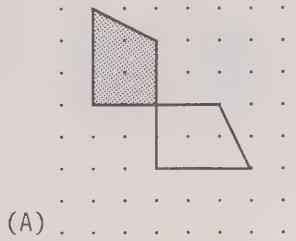
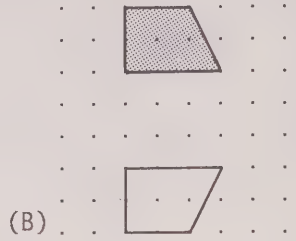
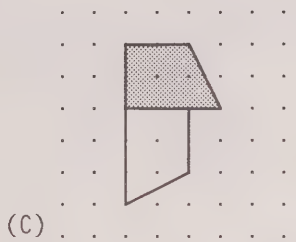
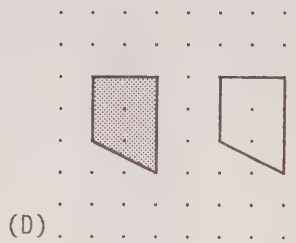
	Instrument	Correct Response
R2T 0109 DM	Which one of these diagrams shows a slide?  	D
R2T 0110 DM	Which one of these diagrams shows a slide?  	B

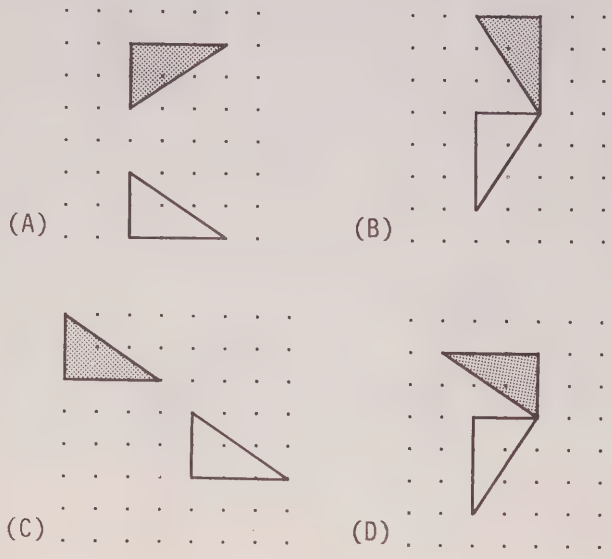
	Instrument	Correct Response
R2T 0111 DM	Which one of these diagrams shows a slide?  ____	C
R2T 0112 DM	Which one of these diagrams shows a slide?  ____	C

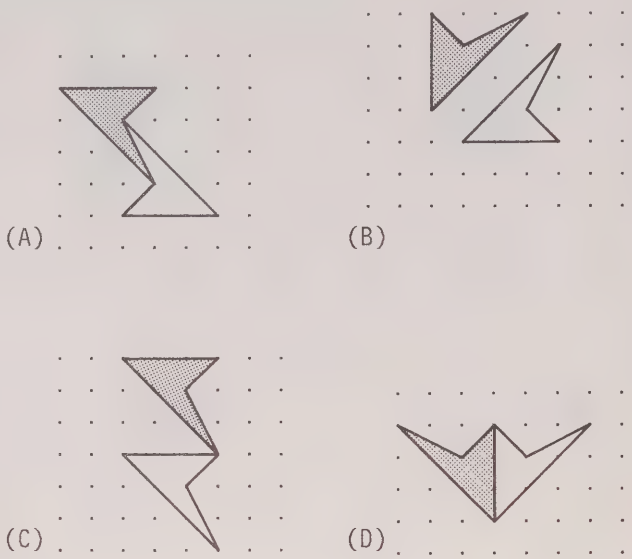
	Instrument	Correct Response
R2T 0113 DS	Which one of the diagrams shows a slide?  	D
R2T 0114 DS	Draw a triangle and shade it. Draw its image after a slide of 5 units to the right. 	

	Instrument	Correct Response
R2T 0115 DS	Draw a quadrilateral and shade it. Draw its image after a slide 5 units downwards.	
R2T 0116 DS	Draw a triangle and shade it. Draw its image after a slide of 2 units to the left and 3 units downwards.	

	Instrument	Correct Response
R2T 0117 VM	Which one of these diagrams shows a turn?  (A)  (B)  (C) (D)	C

	Instrument	Correct Response
R2T 0118 VM	Which one of these diagrams shows a turn?  (A)  (B)  (C)  (D) ____	C

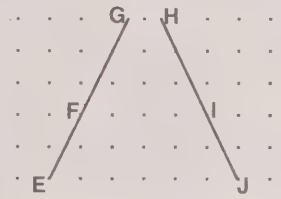
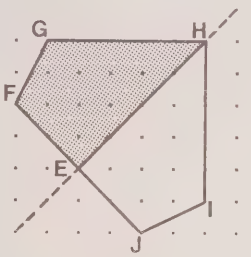
	Instrument	Correct Response
R2T 0119 VM	Which one of these diagrams shows a turn?  	D

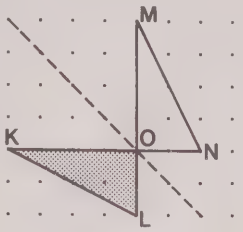
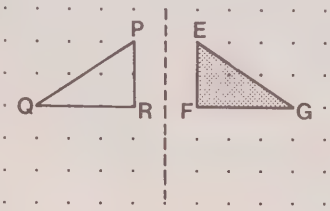
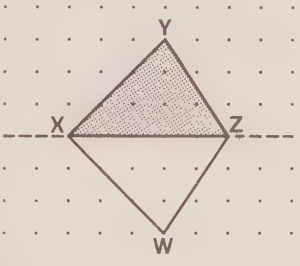
	Instrument	Correct Response
R2T 0120 VM	Which one of these diagrams shows a turn?  (A) (B) (C) (D) ____	A

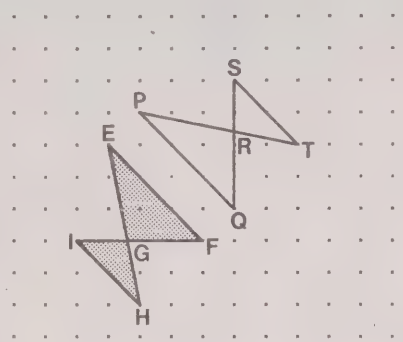
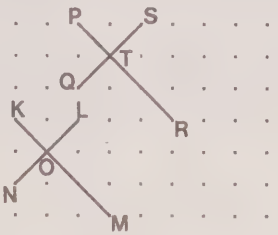
	Instrument	Correct Response
R2T 0121 VS	Draw a triangle and shade it. Draw the image of that triangle resulting from a $\frac{1}{2}$ turn clockwise.	
R2T 0122 VS	Draw a quadrilateral and shade it. Draw the image of that quadrilateral resulting from a $\frac{1}{4}$ turn clockwise.	

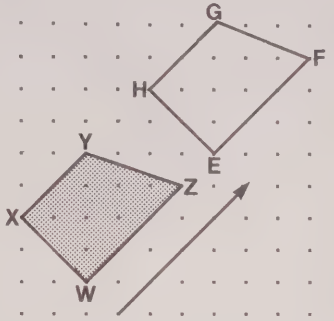
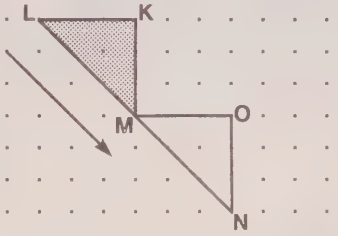
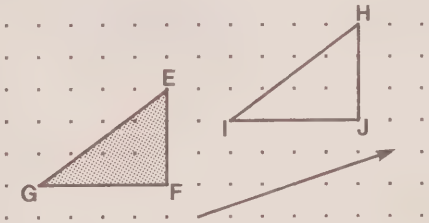
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Transformations	Understanding

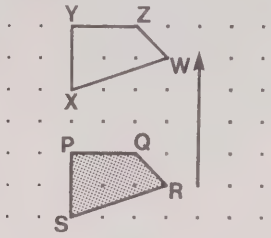
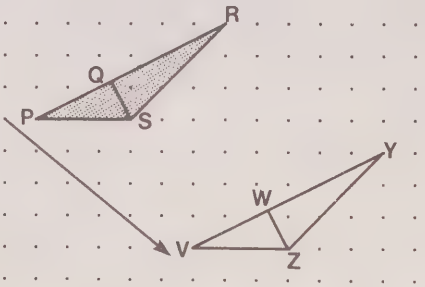
Objective — Given a 2-D figure and its image under a motion (flip, slide, or turn), the student will identify corresponding parts.

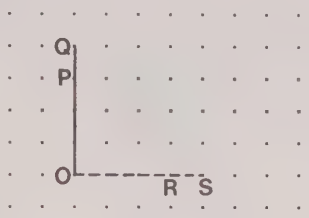
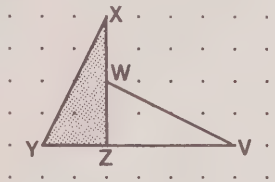
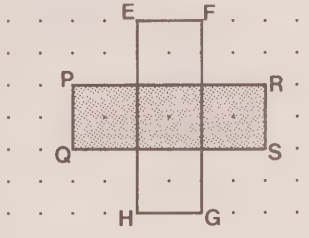
	Instrument	Correct Response
R2T 0201 DM	One figure is a flip image of the other. Point F corresponds to  (A) point H (B) point I (C) point J (D) none of the above ____	B
R2T 0202 DM	One figure is a flip image of the other. Side JI corresponds to  (A) side GH (B) side HE (C) side EF (D) side FG ____	D

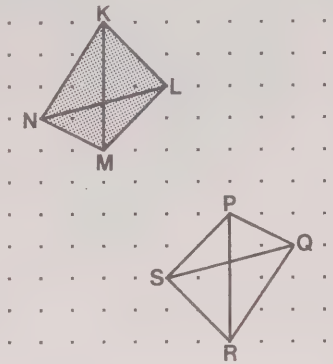
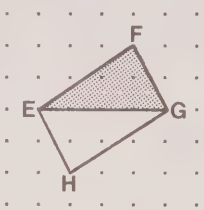
	Instrument	Correct Response
R2T 0203 DM	One figure is a flip image of the other. Angle N corresponds to  (A) angle O (B) angle K (C) angle L (D) none of the above ____	C
R2T 0204 DR	One figure is a flip image of the other. What angle is the image of the angle G?  _____	Angle Q
R2T 0205 DR	One figure is a flip image of the other. Name the side that has the same length as side WZ.  _____	Side YZ

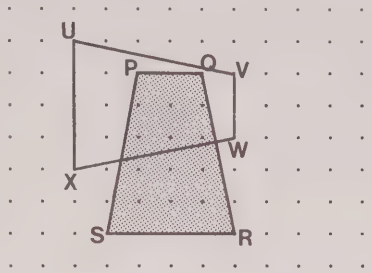
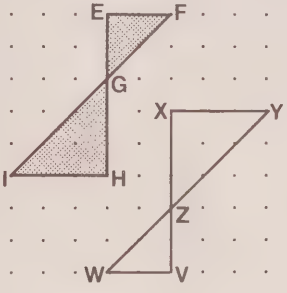
	Instrument	Correct Response
R2T 0206 DR	One figure is a flip image of the other. Name the triangle that corresponds to triangle SRT.  _____	Triangle GHI
R2T 0207 DR	One figure is a slide image of the other. Line segment OM corresponds to  (A) line segment TS (B) line segment TP (C) line segment TQ (D) line segment TR ____	D

	Instrument	Correct Response
R2T 0208 DM	One figure is a slide image of the other. Side XY corresponds to  (A) side FE (B) side EH (C) side HG (D) side GF ____	C
R2T 0209 DM	One figure is a slide image of the other. Angle K corresponds to  (A) angle M (B) angle O (C) angle N (D) none of the above ____	B
R2T 0210 DR	One figure is a slide image of the other. Name the angle that has the same size as angle H.  _____	Angle E

	Instrument	Correct Response
R2T 0211 DR	One figure is a slide image of the other. Name the side that has the same length as side YX.  _____	Side PS
R2T 0212 DR	One figure is a slide image of the other. Name the triangle that corresponds to triangle QSP.  _____	Triangle WZV

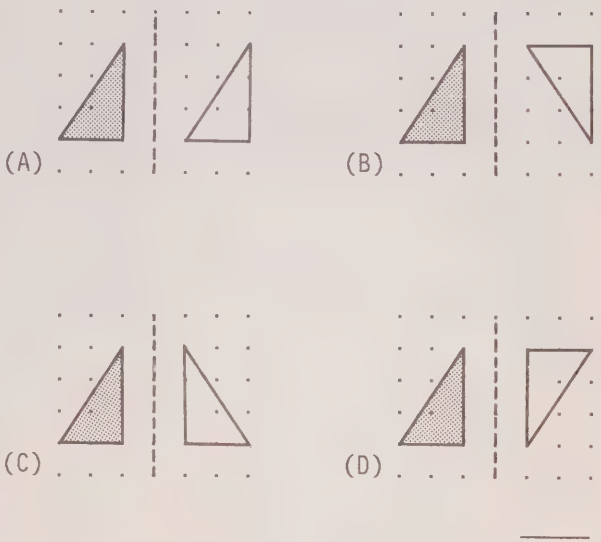
	Instrument	Correct Response
R2T 0213 DM	One figure is a turn image of the other. Point R corresponds to  (A) point Q (B) point P (C) point O (D) point S ____	B
R2T 0214 DM	One figure is a turn image of the other. Side WZ corresponds to  (A) side ZX (B) side XY (C) side YZ (D) none of the above ____	C
R2T 0215 DM	One figure is a turn image of the other. Angle Q corresponds to  (A) angle E (B) angle F (C) angle R (D) angle H ____	A

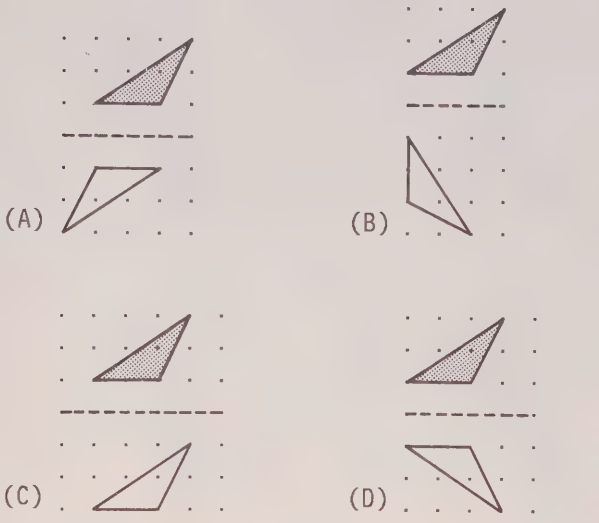
	Instrument	Correct Response
R2T 0216 DM	One figure is a turn image of the other. Diagonal LN corresponds to  (A) diagonal SQ (B) diagonal MK (C) diagonal RP (D) none of the above ____	A
R2T 0217 DR	One figure is a turn image of the other. Name the angle that has the same size as angle FEG.  _____	Angle HGE

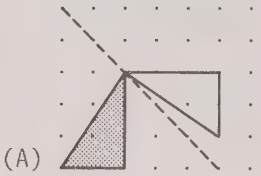
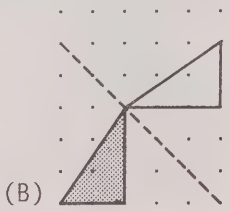
	Instrument	Correct Response
R2T 0218 DR	One figure is the turn image of the other. Name the side that has the same length as PQ.  _____	Side VW
R2T 0219 DR	These two figures are related by a turn. Name the triangle that has the same area as triangle EFG.  _____	Triangle VWZ

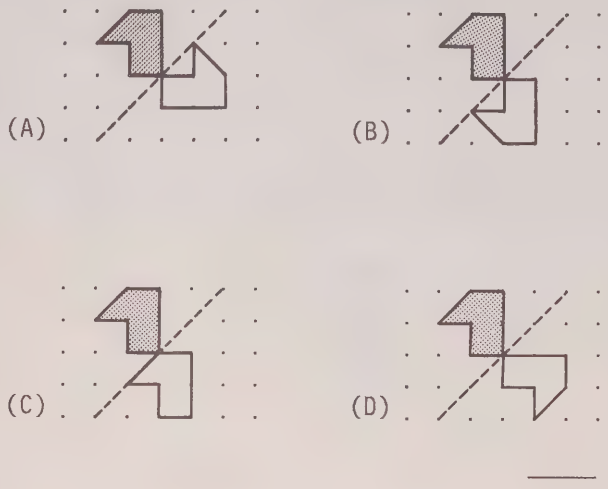
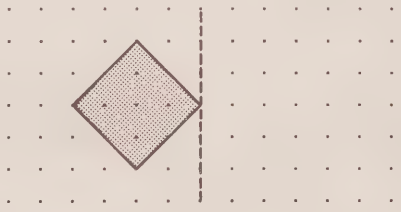
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Transformations	Skills

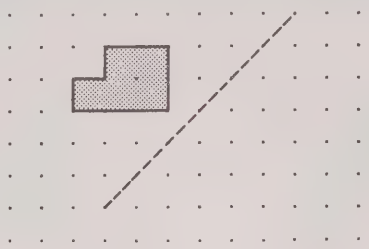
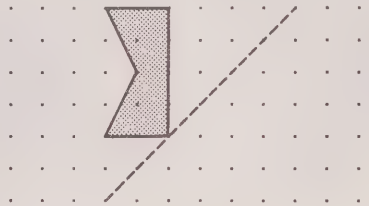
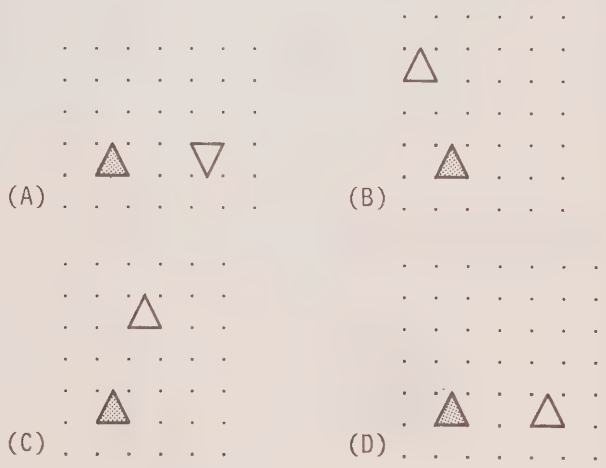
Objective — Given a 2-D figure and a motion (flip, slide, or turn), the student will determine the position of the image of the figure.

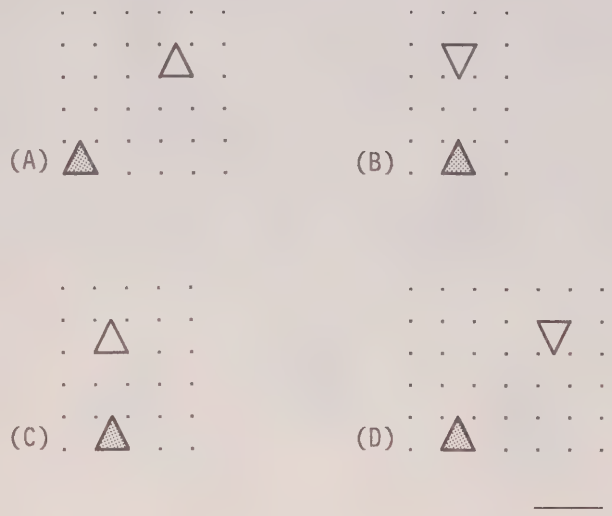
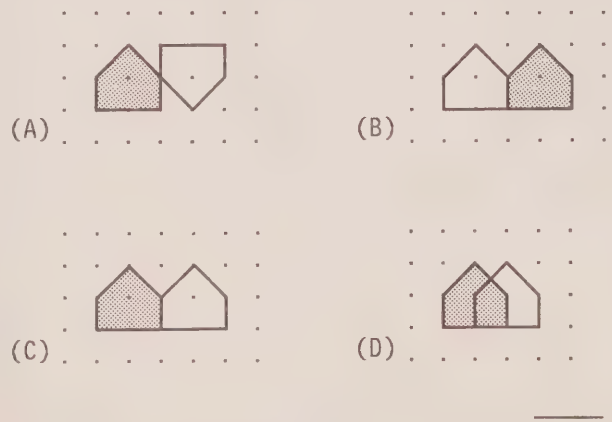
	Instrument	Correct Response
R2T 0301 DM	Which one of these diagrams shows a figure and the image formed by a flip over the dotted line?  	C

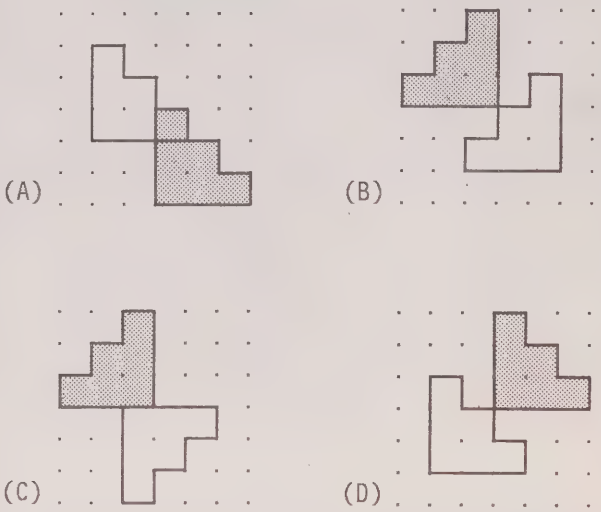
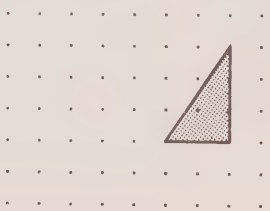
	Instrument	Correct Response
R2T 0302 DM	Which one of these diagrams shows a figure and the image formed by a flip over the dotted line?  	D

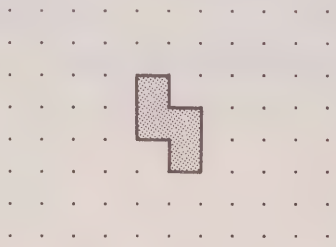
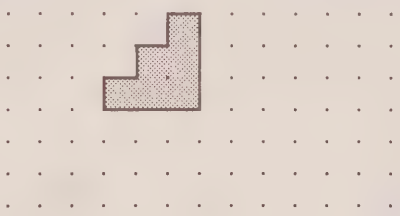
	Instrument	Correct Response
R2T 0303 DM	Which one of these diagrams shows a figure and the image formed by a flip over the dotted line?  (A)  (B) (C) (D) _____	B

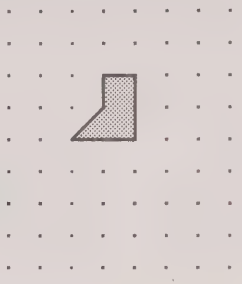
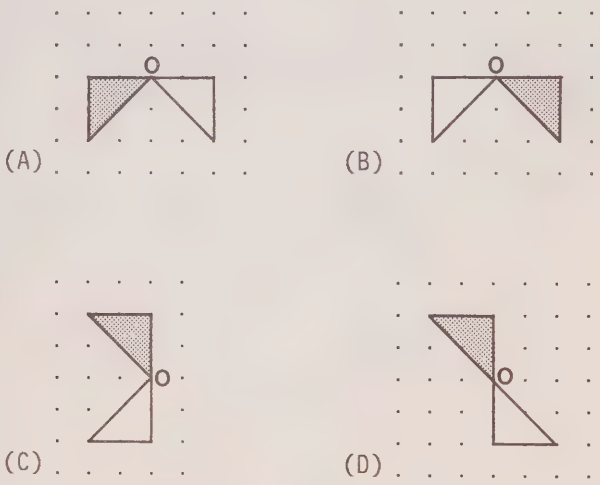
	Instrument	Correct Response
R2T 0304 DM	Which one of these diagrams shows a figure and the image formed by a flip over the dotted line?  	D
R2T 0305 DS	Draw the image formed by flipping the given figure over the dotted line. 	
R2T 0306 DS	Draw the image formed by flipping the given figure over the dotted line. 	

	Instrument	Correct Response
R2T 0307 DS	Draw the image formed by flipping the given figure over the dotted line. 	
R2T 0308 DM	Draw the image formed by flipping the given figure over the dotted line. 	
R2T 0309 DM	Which one of these diagrams shows a figure and the image formed by a slide of 3 units to the right? 	D

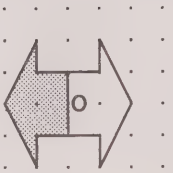
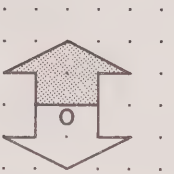
	Instrument	Correct Response
R2T 0310 DM	Which one of these diagrams shows a figure and the image formed by a slide of 3 units upwards?  	C
R2T 0311 DM	Which one of these diagrams shows a figure and the image formed by a slide of 2 units to the left? The original figure (pre-image) is shaded.  	B

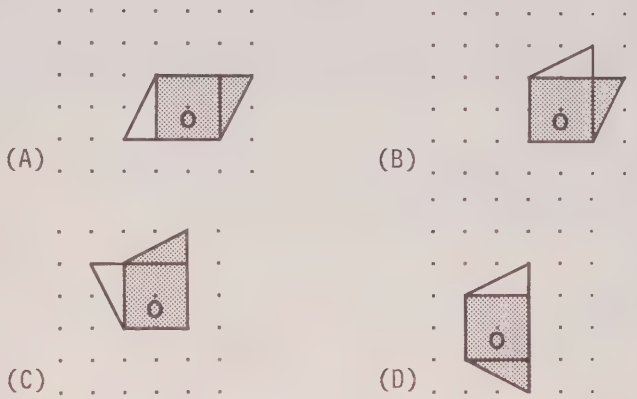
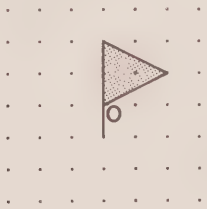
	Instrument	Correct Response
R2T 0312 DM	Which one of these diagrams shows a figure and the image formed by a slide of 2 units to the left and 2 units downwards? The original figure (pre-image) is shaded.  	D
R2T 0313 DS	Draw the image formed by sliding the given figure 3 units to the left. 	

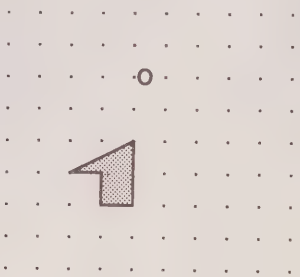
	Instrument	Correct Response
R2T 0314 DS	Draw the image formed by sliding the given figure 3 units downwards.	
R2T 0315 DS	Draw the image formed by sliding the given figure 2 units to the right. 	
R2T 0316 DS	Draw the image formed by sliding the given figure 4 units to the right and 3 units downwards. 	

	Instrument	Correct Response
R2T 0317 DS	Draw the image formed by sliding the given figure 1 unit to the right and 2 units downwards. 	
R2T 0318 DM	Which one of these diagrams shows a figure and the image formed by $\frac{1}{2}$ turn about the centre O? 	D

	Instrument	Correct Response
R2T 0319 DM	Which one of these diagrams shows a figure and the image formed by a $\frac{1}{4}$ clockwise turn about the centre O? The original figure (pre-image) is shaded. (A) (B) (C) (D)	B

	Instrument	Correct Response
R2T 0320 DM	Which one of these diagrams shows a figure and the image formed by a $\frac{1}{4}$ counter-clockwise turn about the centre O? The original figure (pre-image) is shaded. (A)  (B) (C)  (D) 	B

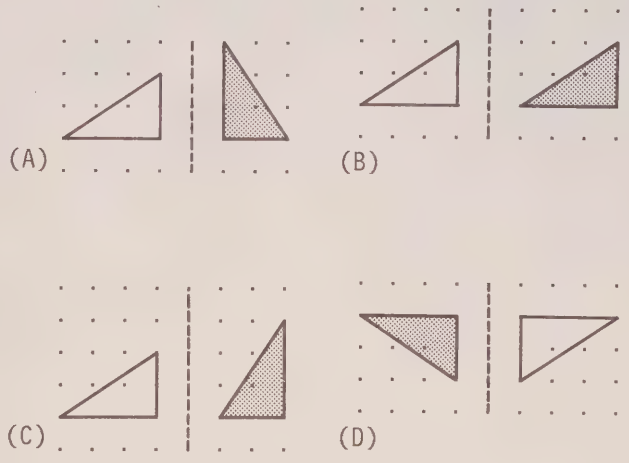
	Instrument	Correct Response
R2T 0321 DM	Which one of these diagrams shows a figure and the image formed by a $\frac{3}{4}$ clockwise turn about the centre O? The original figure (pre-image) is shaded.  (A) (B) (C) (D) ____	C
R2T 0322 DS	Draw the image formed by turning the given figure $\frac{1}{2}$ turn about the centre O. 	

	Instrument	Correct Response
R2T 0323 DS	Draw the image formed by turning the given figure 90° about the centre O. 	
R2T 0324 DS	Draw the image formed by turning the given figure $\frac{1}{4}$ turn about the centre O. 	

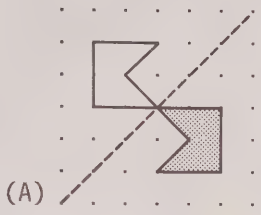
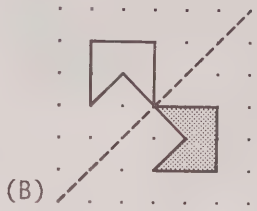
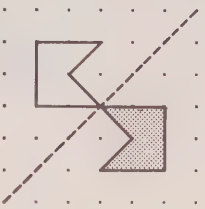
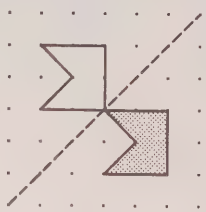
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Transformations	Skills

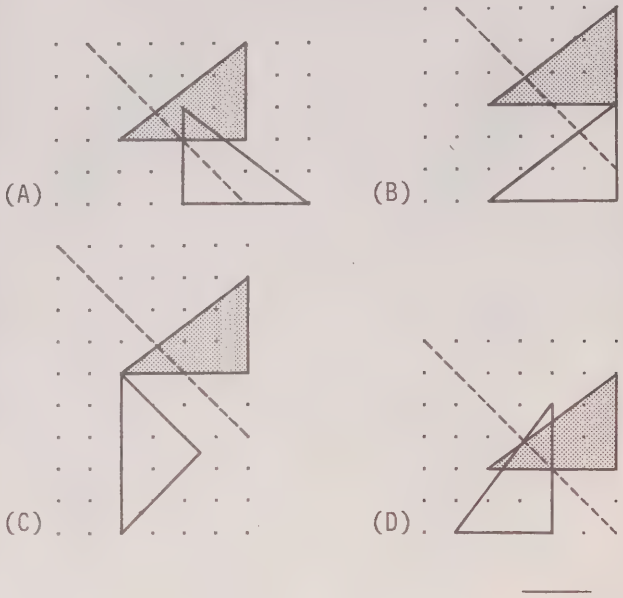
Objective

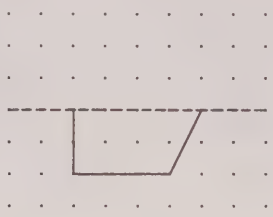
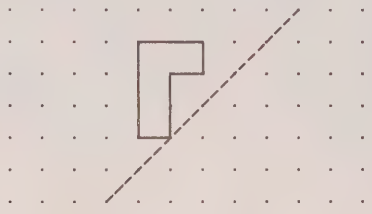
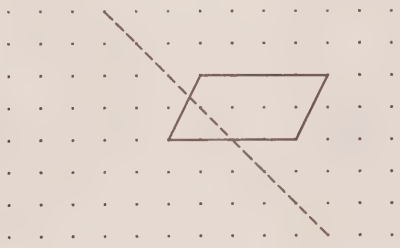
Given a 2-D figure and a motion (flip, slide, or turn), the student will determine the position of the pre-image of the figure.

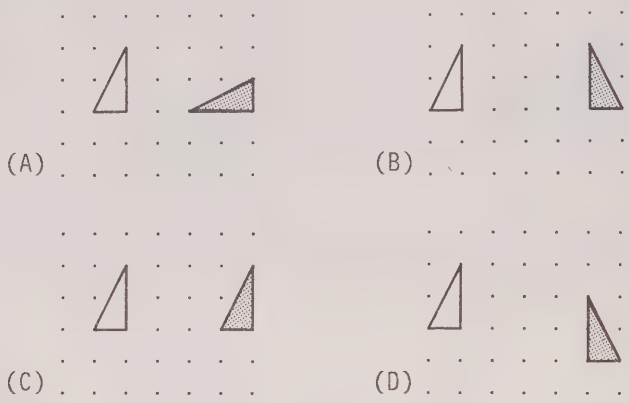
	Instrument	Correct Response
R2T 0401 DM	Which one of these diagrams shows a figure and the image formed by a flip over the dotted line?  ____	D

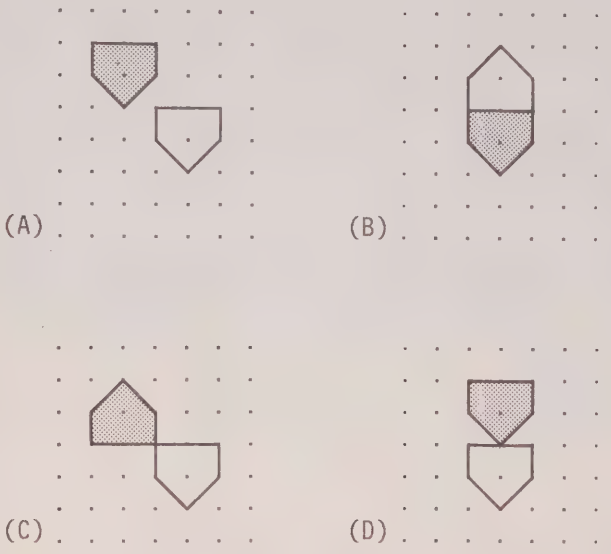
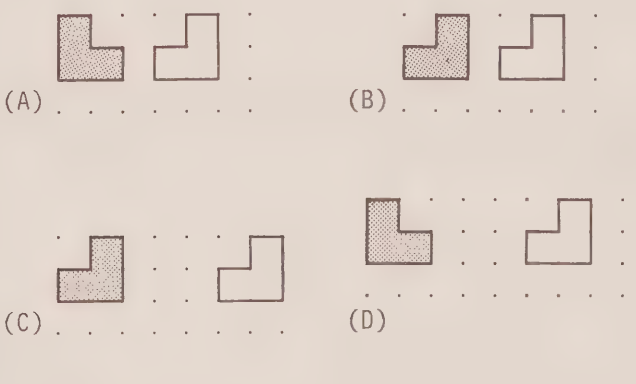
	Instrument	Correct Response
R2T 0402 DM	Which one of these diagrams shows a figure and the image formed by a flip over the dotted line? (A) (B) (C) (D) ____	C

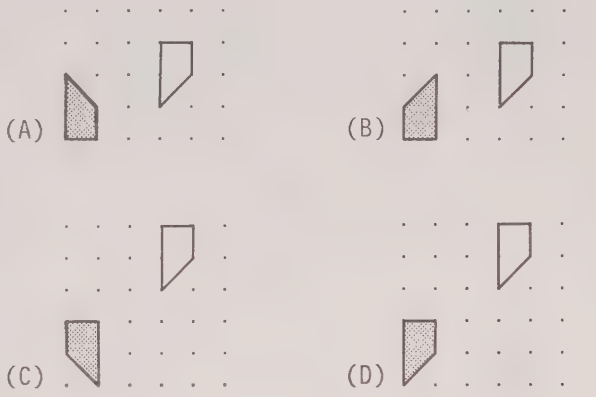
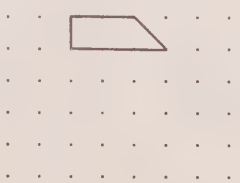
	Instrument	Correct Response
R2T 0403 DM	Which one of these diagrams shows a figure and the image formed by a flip over the dotted line?  (A)  (B)  (C)  (D)	B

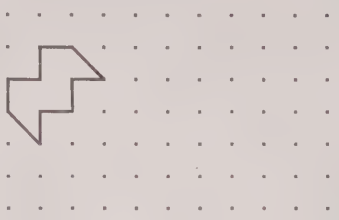
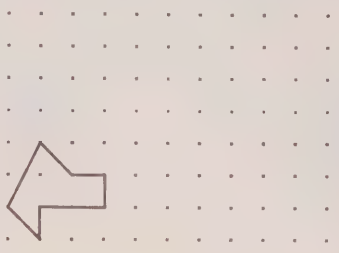
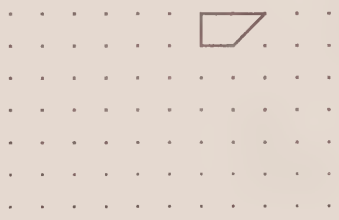
	Instrument	Correct Response
R2T 0404 DM	Which one of these diagrams shows a figure and the image formed by a flip over the dotted line?  	D
R2T 0405 DS	The given image is the result of a flip over the dotted line. Draw the figure used to form the image. 	

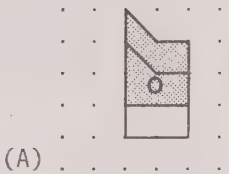
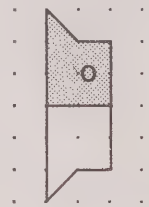
	Instrument	Correct Response
R2T 0406 DS	The given image is the result of a flip over the dotted line. Draw the figure used to form the image. 	
R2T 0407 DS	The given image is the result of a flip over the dotted line. Draw the figure used to form the image. 	
R2T 0408 DS	The given image is the result of a flip over the dotted line. Draw the figure used to form the image. 	

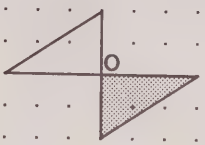
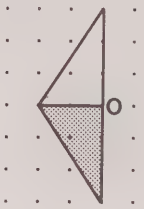
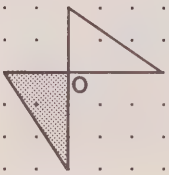
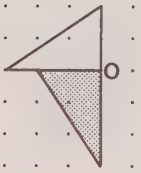
	Instrument	Correct Response
R2T 0409 DM	Which one of these diagrams shows a figure and the image formed by a slide of 4 units to the left?  (A) (B) (C) (D)	C

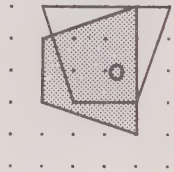
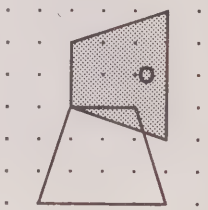
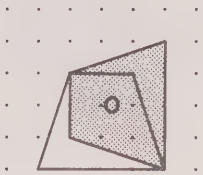
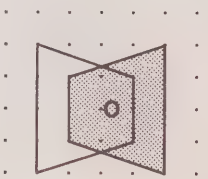
	Instrument	Correct Response
R2T 0410 DM	Which one of these diagrams shows a figure and the image formed by a slide of 2 units downwards?  ____	D
R2T 0411 DM	Which one of these diagrams shows a figure and the image formed by a slide of 3 units to the right?  ____	B

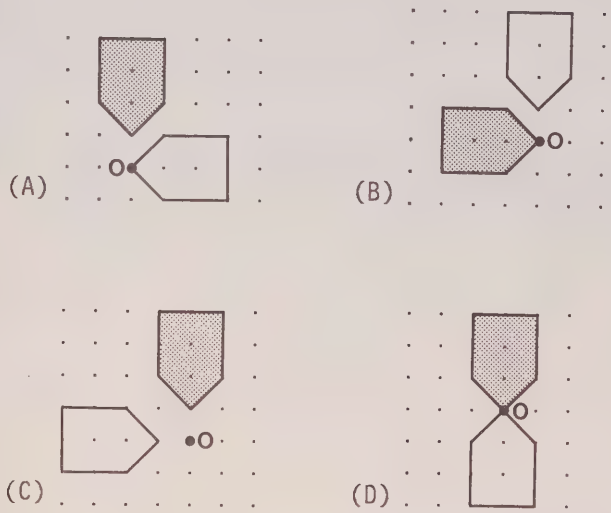
	Instrument	Correct Response
R2T 0412 DM	Which one of these diagrams shows a figure and the image formed by a slide of 3 units to the right and 3 units upwards? 	D
R2T 0413 DS	The given image is the result of a slide of 3 units to the right. Draw the figure used to form the image. 	
R2T 0414 DS	The given image is the result of an upward slide of 4 units. Draw the figure used to form the image. 	

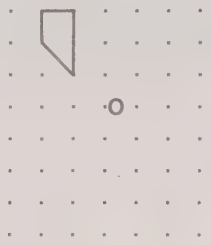
	Instrument	Correct Response
R2T 0415 DS	The given image is the result of a slide of 3 units to the left. Draw the figure used to form the image. 	
R2T 0416 DS	The given image is the result of a slide of 3 units to the left and 4 units downwards. Draw the figure used to form the image. 	
R2T 0417 DS	The given image is the result of a slide of 2 units to the right and a slide of 3 units upwards. Draw the figure used to form the image. 	

	Instrument	Correct Response
R2T 0418 DM	Which one of these diagrams shows a figure and the image formed by a $\frac{1}{2}$ turn about the centre O? (A)  (B)  (C) (D)	C

	Instrument	Correct Response
R2T 0419 DM	Which one of these diagrams shows a figure and the image formed by a $\frac{1}{4}$ turn about the centre O? The original figure (pre-image) is shaded. (A)  (B)  (C)  (D)  ____	D

	Instrument	Correct Response
R2T 0420 DM	Which one of these diagrams shows a figure and the image formed by a $\frac{1}{4}$ clockwise turn about the centre O? The original figure (pre-image) is shaded. (A)  (B)  (C)  (D) 	C

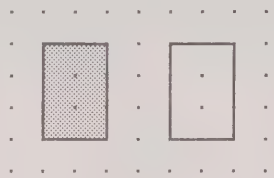
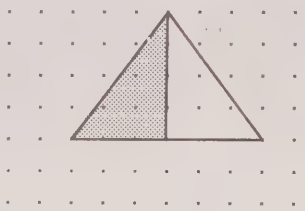
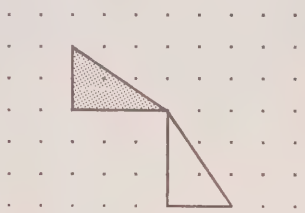
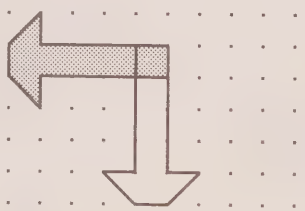
	Instrument	Correct Response
R2T 0421 DM	Which one of these diagrams shows a figure and the image formed by a $\frac{3}{4}$ clockwise turn about the centre O? The original figure (pre-image) is shaded.  	C

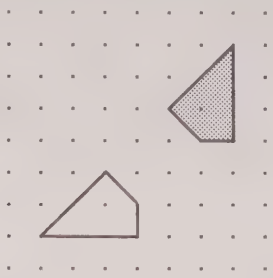
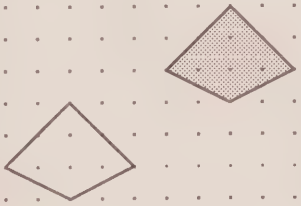
	Instrument	Correct Response
R2T 0422 DS	The given image is the result of a turn of 180° about the centre O. Draw the original figure. 	
R2T 0423 DS	The given image is the result of a turn of 90° clockwise about the centre O. Draw the original figure.	

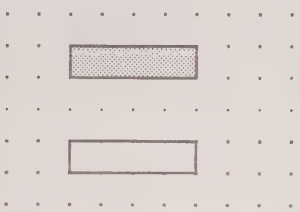
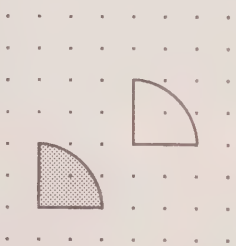
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Transformations	Skills

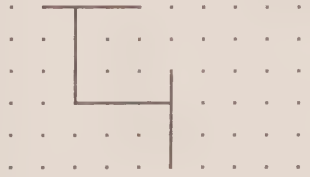
Objective — Given a 2-D figure and its image under a motion (flip, slide, or turn), the student will identify the motion.

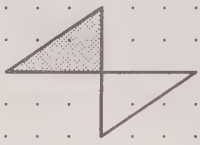
	Instrument	Correct Response
R2T 0501 DM	These two figures are related by (A) a slide (B) a flip (C) a turn (D) none of the above ____	B
R2T 0502 DM	These two figures are related by (A) a slide (B) a turn (C) a flip (D) none of the above ____	C
R2T 0503 DM	One way these two congruent figures are related is by (A) a flip (B) a turn (C) a slide (D) none of the above ____	A

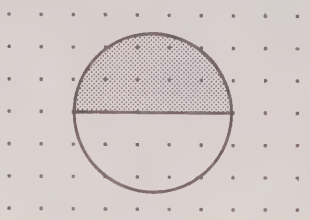
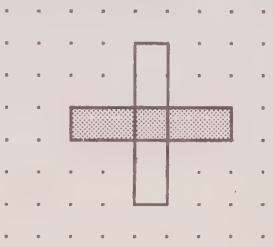
	Instrument	Correct Response
R2T 0504 DS	These two figures are related by a flip. Draw in the flip line. 	
R2T 0505 DS	These two figures are related by a flip. Draw in the flip line. 	
R2T 0506 DS	These two figures are related by a flip. Draw in the flip line. 	
R2T 0507 DS	These two figures are related by a flip. Draw in the flip line. 	

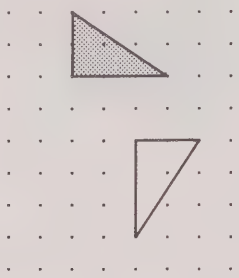
	Instrument	Correct Response
R2T 0508 DS	These two figures are related by a flip. Draw in the flip line. 	
R2T 0509 DM	These two figures are related by (A) a slide (B) a flip (C) a turn (D) none of the above ____	A
R2T 0510 DM	These two figures are related by (A) a turn (B) a slide (C) a flip (D) none of the above ____	B
R2T 0511 DM	These two figures are related by  (A) a flip (B) a turn (C) a slide (D) none of the above ____	C

	Instrument	Correct Response
R2T 0512 DM	These two figures are related by (A) a turn (B) a slide (C) a flip (D) none of the above ____	B
R2T 0513 DS	These two figures are related by a slide. Describe the slide in words or draw a slide arrow. The original figure (pre-image) is shaded. 	3 units downwards
R2T 0514 DS	These two figures are related by a slide. Describe the slide in words or draw a slide arrow. The original figure (pre-image) is shaded. 	3 units to the right and 2 units upwards

	Instrument	Correct Response
R2T 0515 DS	These two figures are related by a slide. Describe the slide in words or draw a slide arrow. The original figure (pre-image) is shaded. 	4 units to the right
R2T 0516 DS	These two figures are related by a slide. Describe the slide in words or draw a slide arrow. The original figure (pre-image) is shaded. 	7 units to the right and 2 units upwards
R2T 0517 DM	These two figures are related by  (A) a slide (B) a flip (C) a turn (D) none of the above ____	C

	Instrument	Correct Response
R2T 0518 DM	These two figures are related by (A) a flip (B) a turn (C) a slide (D) none of the above ____	B
R2T 0519 DM	These two figures are related by  (A) a flip (B) a turn (C) a slide (D) none of the above ____	B
R2T 0520 DM	These two figures are related by (A) a turn (B) a slide (C) a flip (D) none of the above ____	A
R2T 0521 DM	These two figures are related by (A) a slide (B) a turn (C) a flip (D) none of the above ____	B

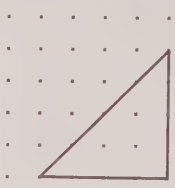
	Instrument	Correct Response
R2T 0522 DS	One figure is a turn image of the other. Draw the turn centre. Label it O. State the the size of the turn. 	Half turn
R2T 0523 DS	One figure is a turn image of the other. Draw the turn centre. Label it A. State the size of the turn. 	Quarter turn
R2T 0524 DS	These two figures are related by a turn. Circle the point which is the turn centre. State the size of the turn.	Quarter turn or three-quarter turn

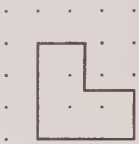
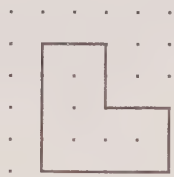
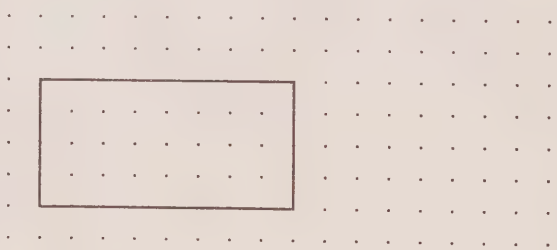
	Instrument	Correct Response
R2T 0525 DS	These two figures are related by a turn. Draw and label the turn centre O. State the size of the turn.  _____	Quarter turn or three-quarter turn

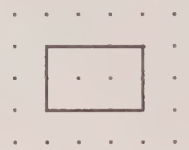
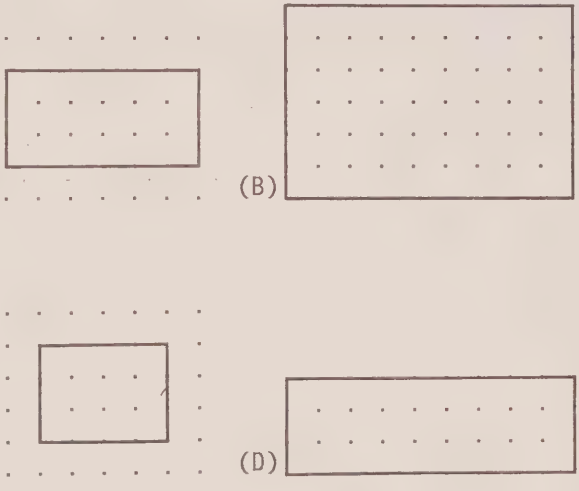
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Transformations	Skills

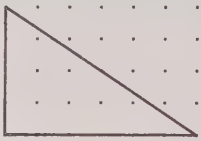
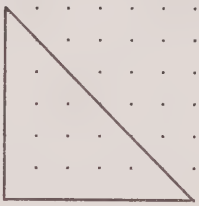
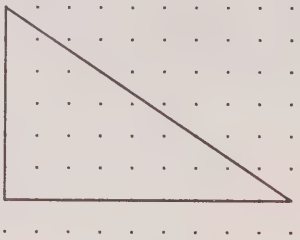
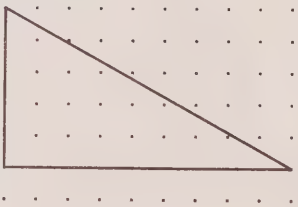
Objective

Given a 2-D figure and a size change, the student will determine the image of the figure.

	Instrument	Correct Response
R2T 0601 DM	Each side of the figure on the right is to be reduced to $\frac{1}{2}$ of its original length. Which one of these diagrams shows the result?  (A) (B) (C) (D) _____	C

	Instrument	Correct Response
R2T 0602 DM	Each side of the figure on the right is to be reduced to $\frac{1}{4}$ of its original length. Which one of these diagrams shows the result? (A) (B)  (C)  (D)	D
R2T 0603 DS	Each side of this figure is to be reduced to $\frac{1}{4}$ of its original length. Draw the new figure. 	

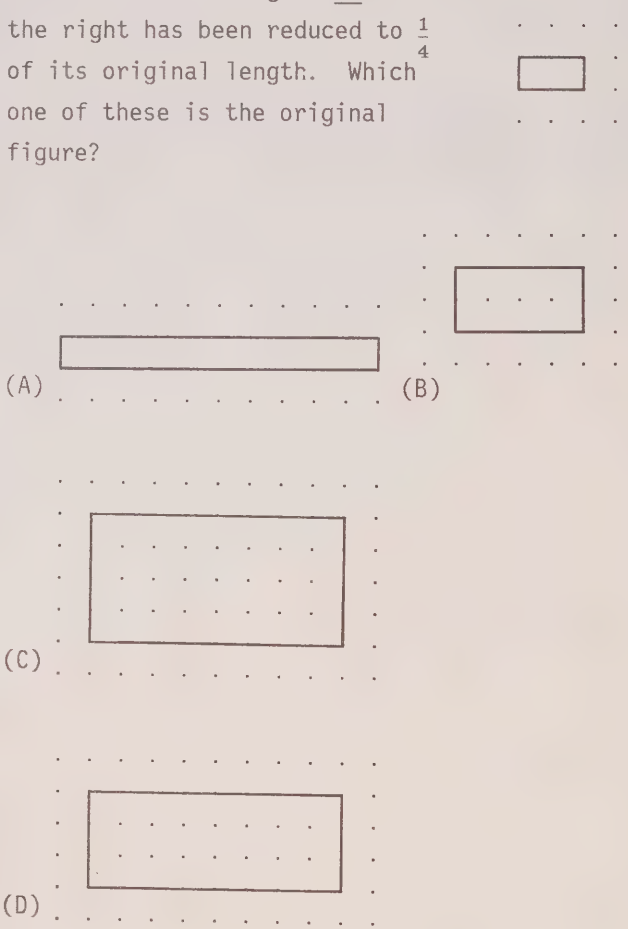
	Instrument	Correct Response
R2T 0604 DS	Each side of this figure is to be reduced to $\frac{3}{4}$ of its original length. Draw the new figure.	
R2T 0605 DM	The figure on the right is changed to a new figure of the same shape by enlarging each side to 3 times its original length. Which one of these diagrams shows the result?   (A) (B) (C) (D)	B

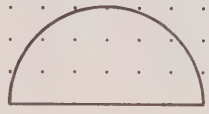
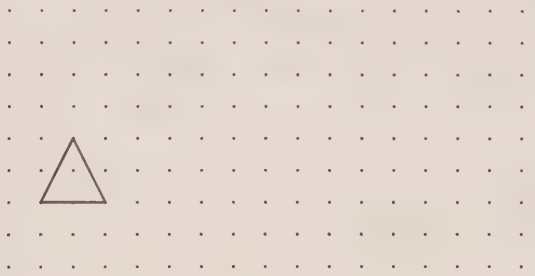
	Instrument	Correct Response
R2T 0606 DM	The figure on the right is to be changed to a new figure of the same shape by enlarging each side to $1\frac{1}{2}$ times its original length. Which one of these diagrams shows the result?  (A)  (B)  (C) (D) 	B

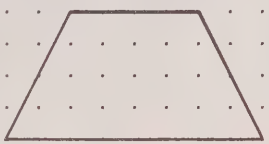
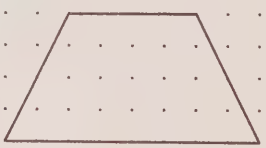
	Instrument	Correct Response
R2T 0607 VS	Each side of the figure below is to be enlarged to 4 times its original length. Draw the new figure.	
R2T 0608 VS	Draw a new figure similar to the figure below. Increase each side to 2 times its original length.	

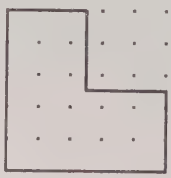
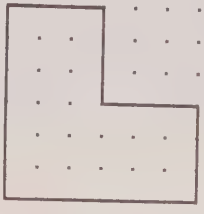
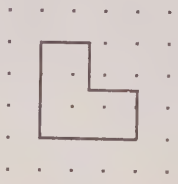
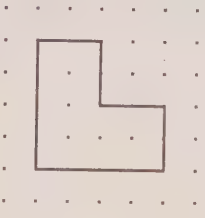
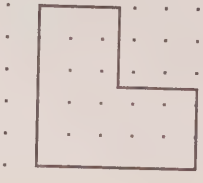
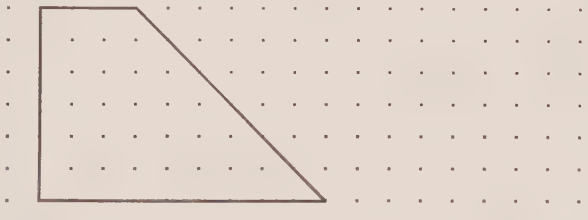
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Transformations	Skills

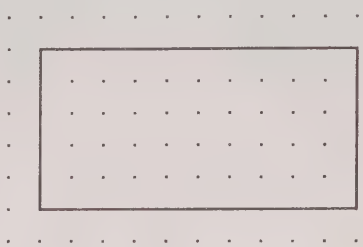
Objective — Given a 2-D figure and a size charge, the student will determine the pre-image of the figure.

	Instrument	Correct Response
R2T 0701 DM	Each side of the figure on the right has been reduced to $\frac{1}{4}$ of its original length. Which one of these is the original figure?  ____	C

	Instrument	Correct Response
R2T 0702 DM	Each side of the figure on the right has been reduced to $\frac{1}{3}$ of its original length. Which one of these is the original figure? (A) (B) (C)  (D) ____	C
R2T 0703 DS	Each side of the figure below has been reduced to $\frac{1}{4}$ of its original length. Draw the original figure. 	

	Instrument	Correct Response
R2T 0704 DS	Each side of the figure below is $\frac{1}{3}$ as long as it was originally. Draw the original figure.	
R2T 0705 DM	Each side of the figure on the right has been enlarged to 4 times its original length. Which one of these is the original figure?  (A) (B) (C) (D)  ____	C

	Instrument	Correct Response
R2T 0706 DM	Each side of this figure has been enlarged to $1\frac{1}{4}$ times its original length. Which one of these is the original figure?  (A)  (B)  (C)  (D) 	C
R2T 0707 DS	Each side of this figure has been enlarged to 3 times its original length. Draw the original figure. 	

	Instrument	Correct Response
R2T 0708 DS	Each side of this figure is twice as long as it was originally. Draw the original figure. 	

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Transformations	Applications

Objective — Given a 2-D figure and a chain of motions (flips, slides, turns), the student will identify or form a strip pattern.

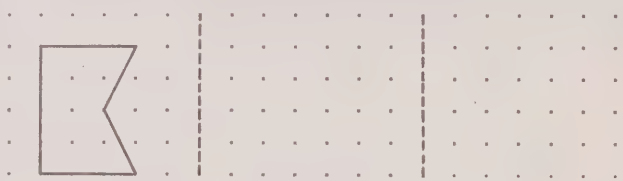
	Instrument	Correct Response
R2T 0801 DM	Which one of the patterns below is made by repeated slides of the figure on the right? (A) (B) (C) (D) ____	C

	Instrument	Correct Response
R2T 0802 DM	Which one of the patterns below is made by repeated flips of the figure on the right? (A) (B) (C) (D) ____	B

	Instrument	Correct Response
R2T 0803 DM	Which one of the patterns below is made by turning this figure through repeated half turns? (A) (B) (C) (D) ____	C

	Instrument	Correct Response
R2T 0804 DM	Which one of the patterns below is made by sliding the figure on the right? (A) (B) (C) (D) ____	D

	Instrument	Correct Response
R2T 0805 DM	Which one of the patterns below is made by flipping the figure on the right? (A) (B) (C) (D) ____	C

	Instrument	Correct Response
R2T 0806 DS	Use this figure to make a strip pattern by repeating a slide of 5 units to the right at least three times. 	
R2T 0807 DS	Use this figure to make a strip pattern by repeating a flip over a vertical line that is 2 units to the right of the figure. 	
R2T 0808 DS	Use this figure to make a strip pattern by repeating a $\frac{1}{2}$ turn about the centres indicated. 	

	Instrument	Correct Response
R2T 0809 DM	Which one of the patterns below may be formed by the repetition of a given flip and slide on this figure? (A) (B) (C) (D)	C

	Instrument	Correct Response
R2T 0810 DM	Which one of the patterns below may be formed by the repetition of a given turn and slide on this figure? (A) (B) (C) (D)	D

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Transformations	Applications

Objective

Given a 2-D strip pattern, the student will identify a chain of motions (flips, slides, or turns) that can be used to form the pattern.

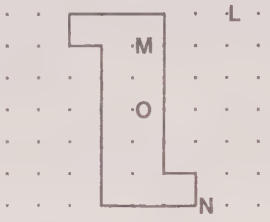
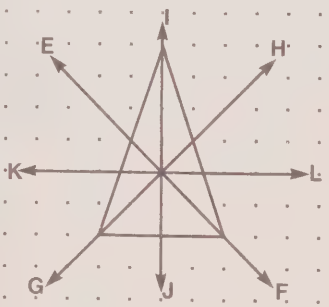
	Instrument	Correct Response
R2T 0901 DM	Starting with the figure on the right, the pattern below can be formed by using (A) a repeated turn (B) a repeated flip (C) a repeated slide (D) any of these ____	C
R2T 0902 DM	Starting with the figure on the right, the pattern below can be formed by using (A) a repeated turn (B) a repeated flip (C) a repeated slide (D) any of these ____	B

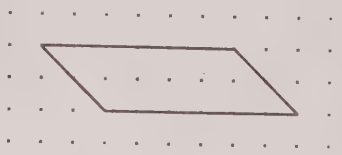
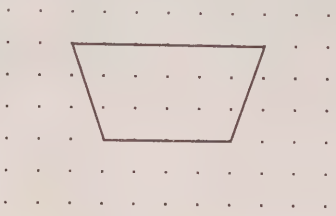
	Instrument	Correct Response
R2T 0903 DM	Starting with the figure on the right, the pattern below can be formed by using (A) a repeated turn (B) a repeated flip (C) a repeated slide (D) any of these	A
R2T 0904 DM	Starting with the figure on the right, the pattern below can be formed by using (A) a repeated turn or flip (B) a repeated flip or slide (C) a repeated slide or turn (D) any of these	B
R2T 0905 DM	Starting with the figure on the right, the pattern below can be formed by using (A) a repeated turn or flip (B) a repeated flip or slide (C) a repeated slide or turn (D) any of these	D

	Instrument	Correct Response
R2T 0906 DS	This strip pattern can be formed by using a repeated slide. Draw the slide arrows.	
R2T 0907 DS	This strip pattern can be formed by using a repeated flip. Draw the flip lines.	
R2T 0908 DS	This strip pattern can be formed by using a repeated turn. Draw and label the turn centres.	

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Symmetry	Understanding

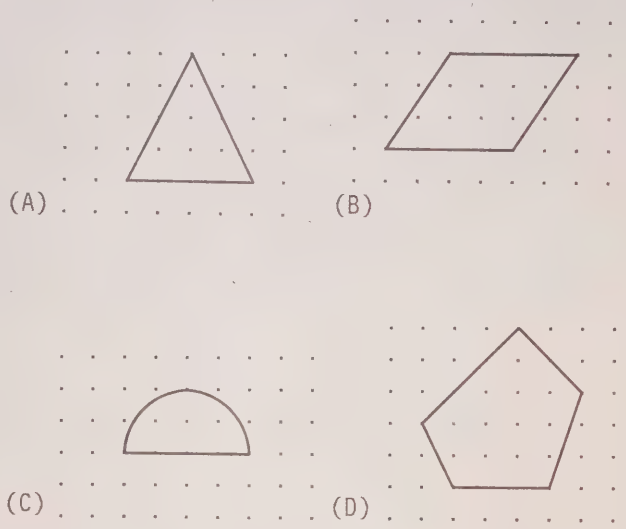
Objective — Given a 2-D symmetric figure, the student will identify the motions (flip, slide, or turn) that will map the figure onto itself.

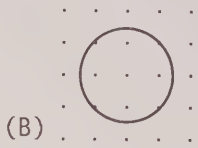
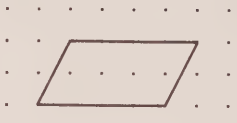
	Instrument	Correct Response
R2S 0101 DM	This figure keeps its shape, size, and orientation when it is turned a $\frac{1}{2}$ turn about the point  (A) L (B) M (C) N (D) O ____	D
R2S 0102 DM	This figure keeps its shape, size, and orientation when it is flipped over the line  (A) EF (B) KL (C) GH (D) IJ ____	D

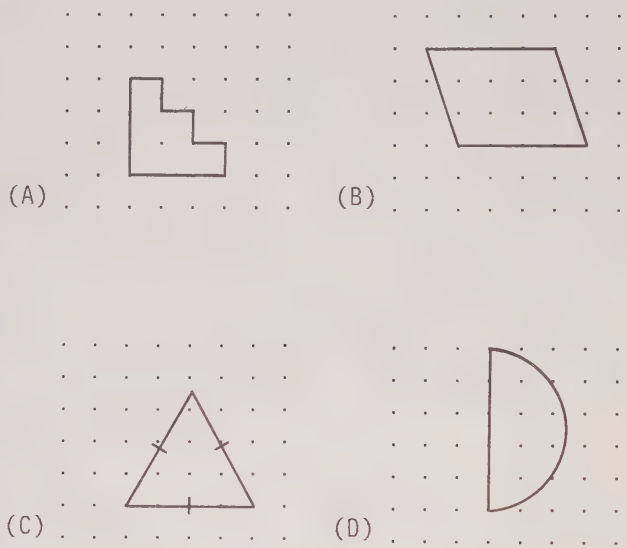
	Instrument	Correct Response
R2S 0103 DS	This figure keeps its shape, size, and orientation under a $\frac{1}{2}$ turn. Draw the turn centre. Label it X. 	
R2S 0104 DS	This figure keeps its shape, size, and orientation under a certain flip. Draw the flip line. Label it AB. 	

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Symmetry	Skills

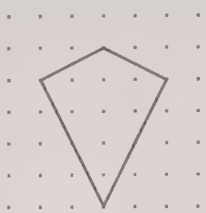
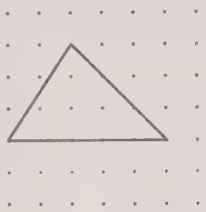
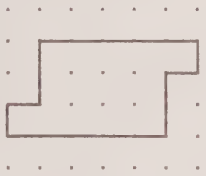
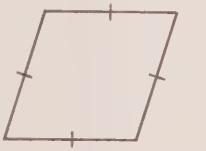
Objective — Given a 2-D figure, the student will determine the symmetry of the figure.

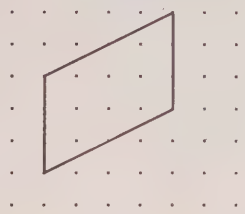
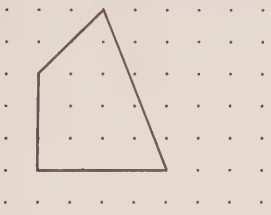
	Instrument	Correct Response
R2S 0201 DM	Which one of these figures has no symmetry?  	D

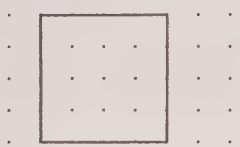
	Instrument	Correct Response
R2S 0202 DM	Which one of these figures has line symmetry but <u>not</u> turn symmetry? (A)  (B) (C) (D) ____	C
R2S 0203 DM	Which one of these figures has turn symmetry but <u>not</u> line symmetry? (A)  (B) (C) (D) ____	B

	Instrument	Correct Response
R2S 0204 DM	Which one of these figures has <u>both</u> line symmetry and turn symmetry?  	C
R2S 0205 VS	Draw a figure that has no symmetry.	

	Instrument	Correct Response
R2S 0206 VS	Draw a figure that has line symmetry but <u>not</u> turn symmetry.	
R2S 0207 VS	Draw a figure that has turn symmetry but <u>not</u> line symmetry.	
R2S 0208 VS	Draw a figure that has <u>both</u> line and turn symmetry.	

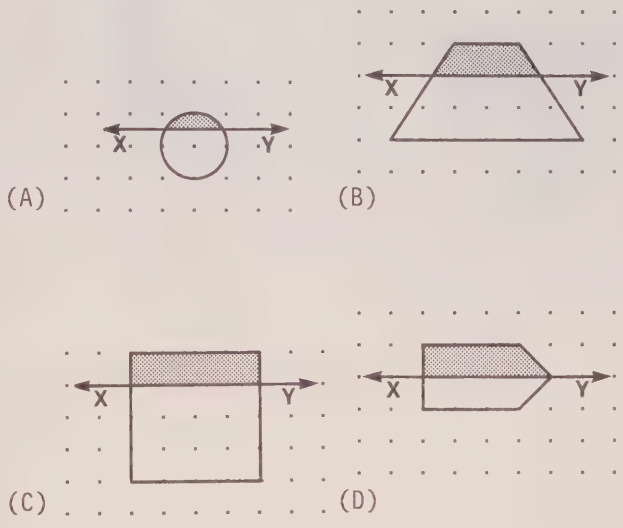
	Instrument	Correct Response
R2S 0209 DM	This figure has  (A) no symmetry (B) only turn symmetry (C) only line symmetry (D) both turn and line symmetry ____	C
R2S 0210 DM	This figure has  (A) no symmetry (B) only turn symmetry (C) only line symmetry (D) both turn and line symmetry ____	A
R2S 0211 DM	This figure has  (A) no symmetry (B) only turn symmetry (C) only line symmetry (D) both turn and line symmetry ____	B
R2S 0212 DM	This figure has  (A) no symmetry (B) only turn symmetry (C) only line symmetry (D) both line and turn symmetry ____	D

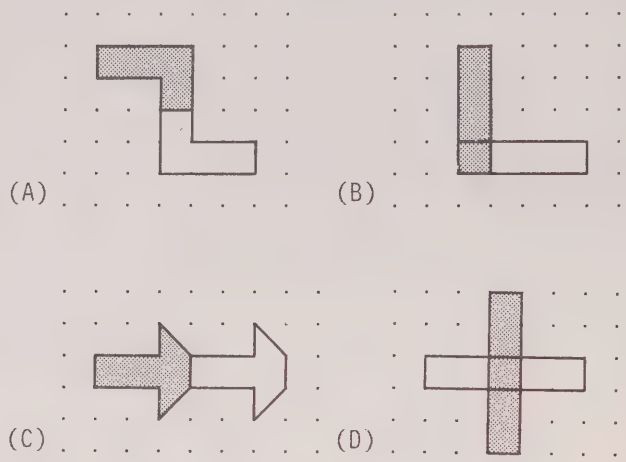
	Instrument	Correct Response
R2S 0213 DR	What kind of symmetry does this figure have? _____	Line symmetry
R2S 0214 DR	What kind of symmetry does this figure have?  _____	Turn symmetry
R2S 0215 DR	What kind of symmetry does this figure have?  _____	No symmetry

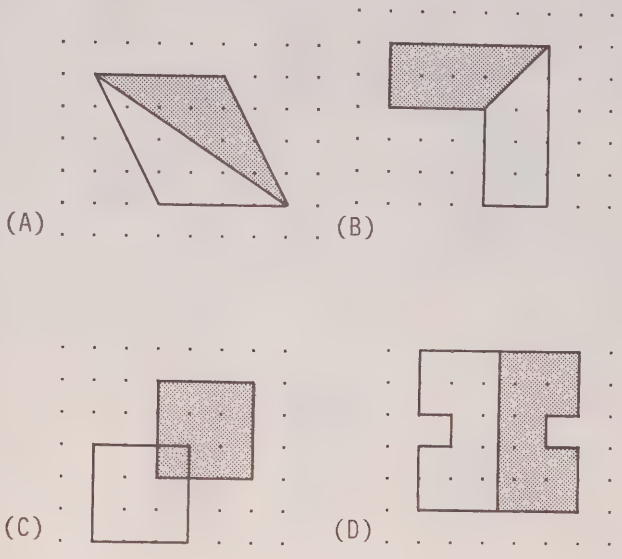
	Instrument	Correct Response
R2S 0216 DR	What kinds of symmetry does this figure have? 1. _____ 2. _____	Line symmetry Turn symmetry
R2S 0217 DR	What kinds of symmetry does this figure have?  1. _____ 2. _____	Line symmetry Turn symmetry

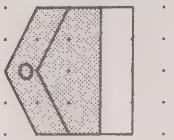
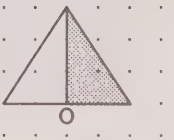
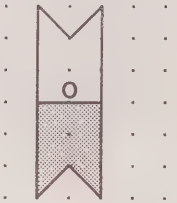
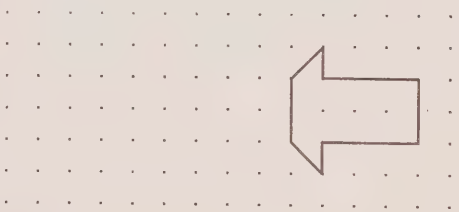
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Symmetry	Applications

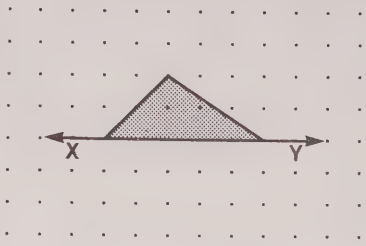
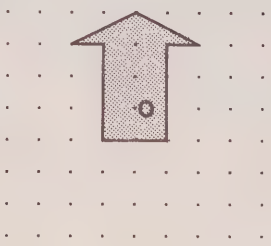
Objective — Given a 2-D figure, the student will use a motion (flip, slide, or turn) to form a symmetric figure.

	Instrument	Correct Response
R2S 0301 VM	Which one of these diagrams shows the formation of a symmetric figure by a flip over line XY?  	D

	Instrument	Correct Response
R2S 0302 VM	Which one of these diagrams shows the formation of a symmetric figure by a slide of 3 units to the right?  	C

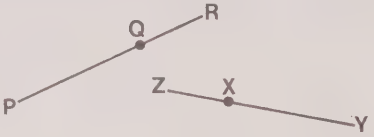
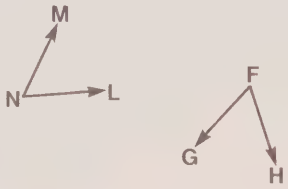
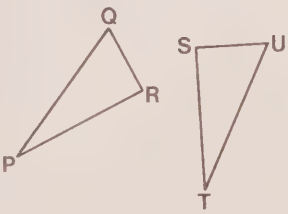
	Instrument	Correct Response
R2S 0303 VM	Which one of these diagrams shows the formation of a symmetric figure by a slide of 2 units to the left and 2 units downwards?  	C

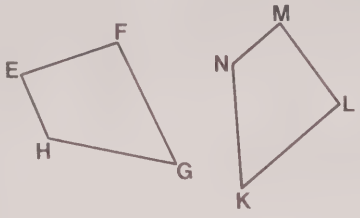
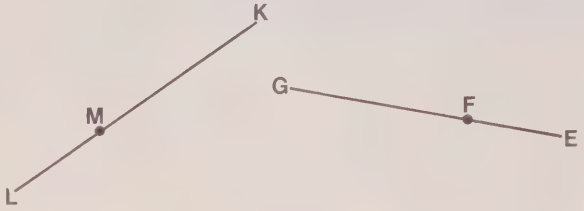
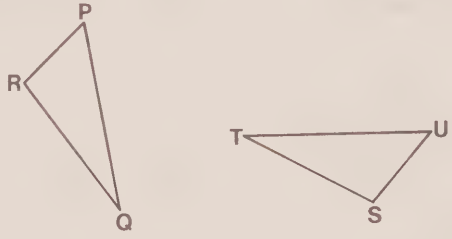
	Instrument	Correct Response
R2S 0304 VM	Which one of these diagrams shows the formation of a symmetric figure by a $\frac{1}{2}$ turn about centre O? (A)  (B) (C)  (D) 	D
R2S 0305 VS	Use a slide of 3 units to the left to form a symmetric figure. 	

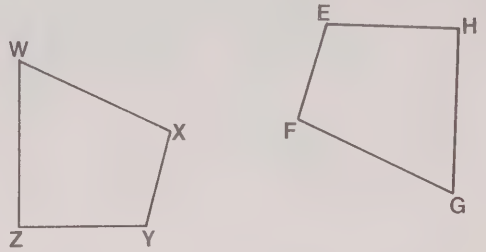
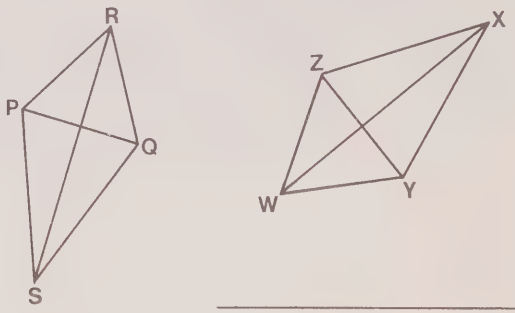
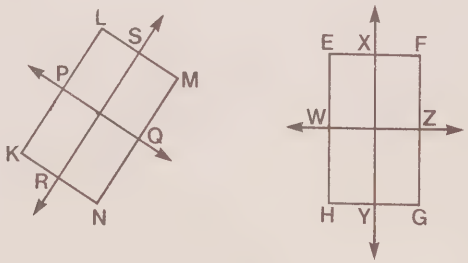
	Instrument	Correct Response
R2S 0306 VS	Use a flip over a line XY to form a symmetric figure. 	
R2S 0307 VS	Use a $\frac{1}{2}$ turn about centre O to form a symmetric figure. 	

STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Congruence	Understanding

Objective — Given two congruent 2-D figures, the student will identify corresponding parts of the figures.

	Instrument	Correct Response
R2G 0101 DM	If these two figures are congruent, point P corresponds to  (A) point X (B) point Y (C) point Z (D) none of the above _____	B
R2G 0102 DM	If these two figures are congruent, point N corresponds to  (A) point H (B) point G (C) point F (D) none of the above _____	C
R2G 0103 DM	If these two figures are congruent, vertex U corresponds to  (A) vertex Q (B) vertex P (C) vertex R (D) none of the above _____	A

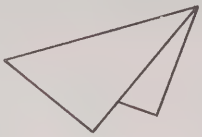
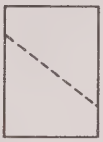
	Instrument	Correct Response
R2G 0104 DM	If these two figures are congruent, side FG corresponds to  (A) side NM (B) side ML (C) side LK (D) side KN ____	C
R2G 0105 DR	These two figures are congruent. Name the point that corresponds to point F.  _____	Point M
R2G 0106 DR	These two figures are congruent. Name the angle that corresponds to angle S.  _____	Angle R

	Instrument	Correct Response
R2G 0107 DR	These two figures are congruent. Name the side that corresponds to side WX.  _____	Side FG
R2G 0108 DR	These two figures are congruent. Name the diagonal that corresponds to diagonal YZ.  _____	Diagonal PQ
R2G 0109 DR	These two figures are congruent. Name the line of symmetry that corresponds to line PQ.  _____	Line WZ

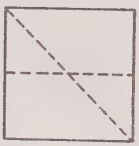
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Congruence	Understanding

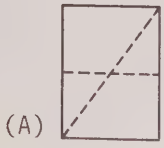
Objective — Given a picture of folded paper, the student will identify the congruent 2-D figures which result.

	Instrument	Correct Response
R2G 0201 DM	A sheet of paper is folded as shown on the right. When it is unfolded, the sheet will look like (A) (B) (C) (D) ____	C

	Instrument	Correct Response
R2G 0202 DM	A sheet of paper is folded as shown on the right. When it is unfolded, the sheet will look like  (A)  (B) (C) (D) ____	D

	Instrument	Correct Response
R2G 0203 DM	A sheet of paper is folded twice as shown on the right. When it is unfolded, the sheet will look like (A) (B) (C) (D)	B

	Instrument	Correct Response
R2G 0204 DM	A square sheet of paper is folded twice as shown on the right. When it is unfolded, the sheet will look like (A) (B) (C)  (D) ____	D

	Instrument	Correct Response
R2G 0205 DM	A sheet of paper is folded twice as shown on the right. When it is unfolded, the sheet will look like  (A) (B) (C) (D) ____	D

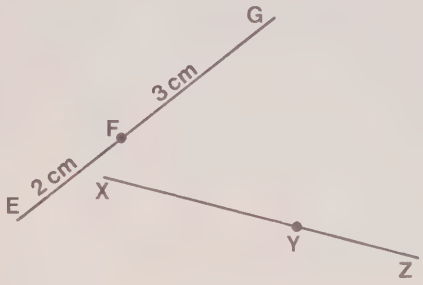
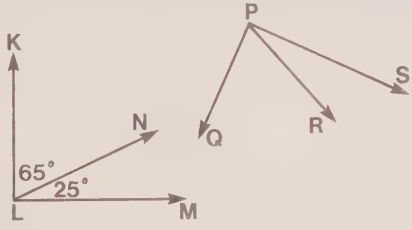
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Congruence	Skills

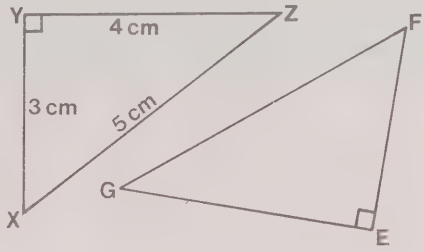
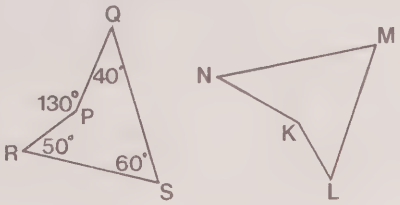
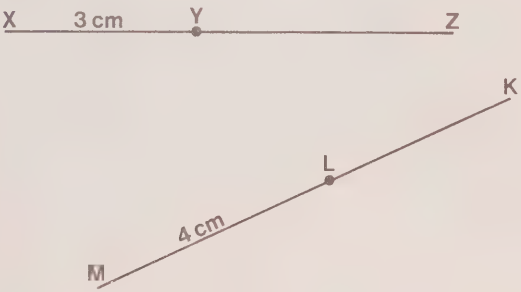
Objective — Given two or more congruent figures, the student identify the the number of folds of a rectangular piece of paper needed to form the figures.

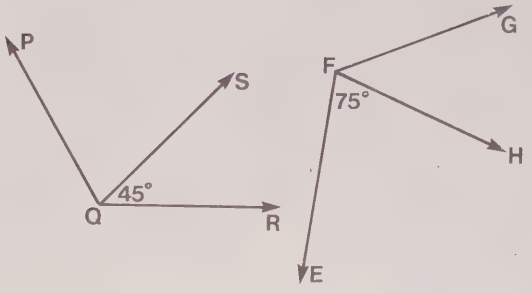
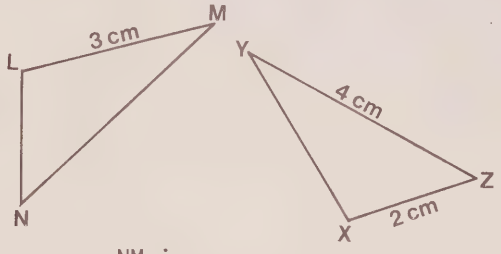
	Instrument	Correct Response
R2G 0301 VM	What is the least number of times a rectangular piece of paper can be folded to form two congruent rectangles? (A) 4 (B) 3 (C) 2 (D) 1 _____	D
R2G 0302 VM	How many times must a rectangular piece of paper be folded to form two congruent triangles? (A) 1 (B) 2 (C) 3 (D) 4 _____	A
R2G 0303 VM	What is the least number of times any rectangular piece of paper can be folded to form four congruent triangles? (A) 2 (B) 3 (C) 4 (D) 5 _____	A

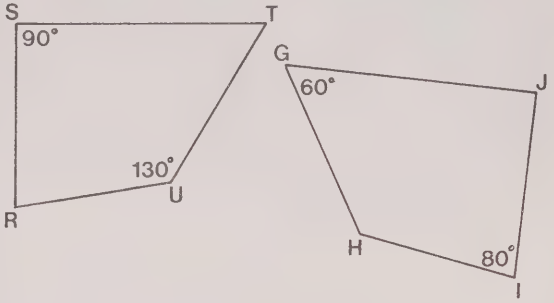
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Congruence	Skills

Objective — Given two congruent 2-D figures, the student will identify common measurements (angles, lengths, or areas) of the figures.

	Instrument	Correct Response
R2G 0401 DM	If these two figures are congruent, the length of XY is  (A) 5 cm (B) 3 cm (C) 2 cm (D) none of the above ____	B
R2G 0402 DM	If these two figures are congruent, the size of angle SPR is  (A) 25° (B) 65° (C) 90° (D) none of the above ____	A

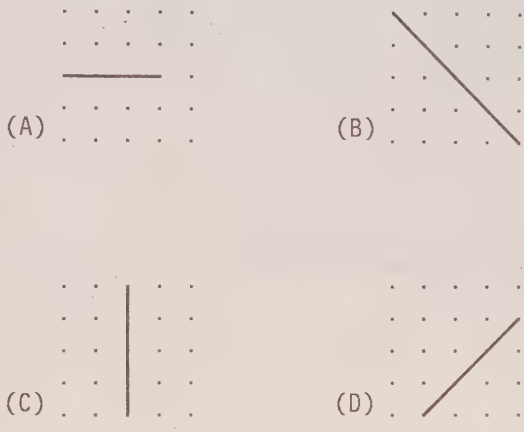
	Instrument	Correct Response
R2G 0403 DM	If these two figures are congruent, the length of GF is  (A) 3 cm (B) 4 cm (C) 5 cm (D) none of the above _____	C
R2G 0404 DM	If these two figures are congruent, the size of angle LMN is  (A) 40° (B) 50° (C) 60° (D) 130° _____	C
R2G 0405 DR	These two figures are congruent. Without measuring, find the lengths of YZ and LK.  YZ is _____ LK is _____	4 cm 3 cm

	Instrument	Correct Response
R2G 0406 DR	These two figures are congruent. Without measuring, find the measures of the sizes of angles HFG and SQP.  Angle HFG is _____ Angle SQP is _____	45° 75°
R2G 0407 DR	These two figures are congruent. Without measuring, find the lengths of NM and LN.  NM is _____ LN is _____	4 cm 2 cm

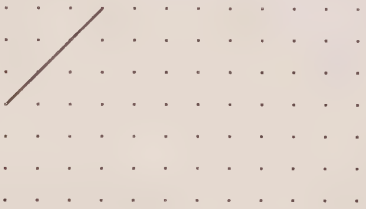
	Instrument	Correct Response
R2G 0408 DR	These two figures are congruent. Without measuring, determine the measures of the sizes of angles URS and IJG.  Angle URS is _____	80°
	Angle IJG is _____	90°

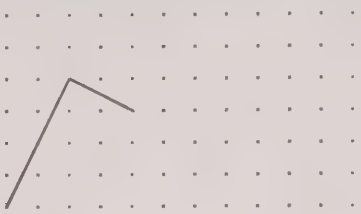
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Congruence	Skills

Objective Given 2-D figures, the student will identify congruent figures.

	Instrument	Correct Response
R2G 0501 DM	Which one of the figures below is congruent to the one on the right? 	D

	Instrument	Correct Response
R2G 0502 DM	Which one of the figures below is congruent to the one on the right? (A) (B) (C) (D)	B
R2G 0503 DM	Which one of the figures below is congruent to the one on the right? (A) (B) (C) (D)	C

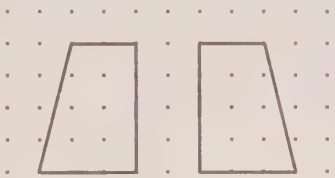
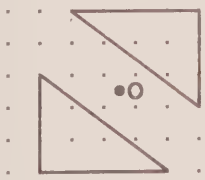
	Instrument	Correct Response
R2G 0504 DM	Which one of the figures below is congruent to the one on the right? (A) (B) (C) (D)	D
R2G 0505 DS	Draw a figure that is congruent to the given figure. 	

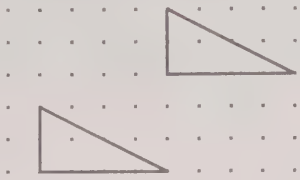
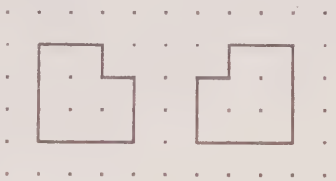
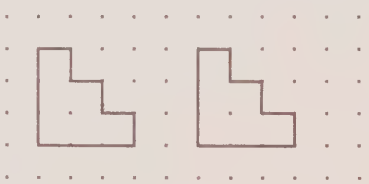
	Instrument	Correct Response
R2G 0506 DS	Draw a figure that is congruent to the given figure. 	
R2G 0507 DS	Draw a figure that is congruent to the given figure.	
R2G 0508 DS	Draw a figure that is congruent to the given figure.	
R2G 0509 DS	Draw a figure that is congruent to the given figure.	

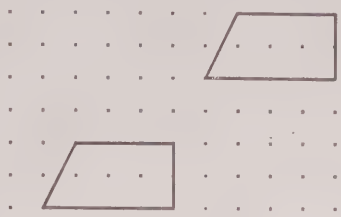
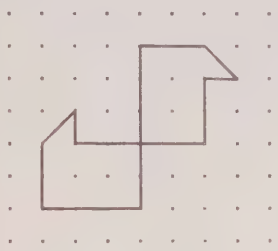
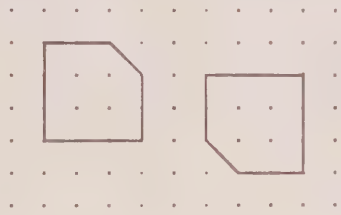
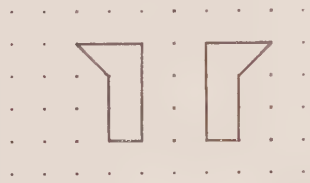
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Congruence	Applications

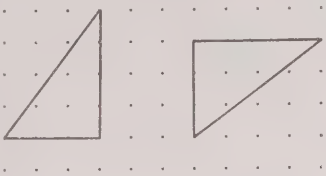
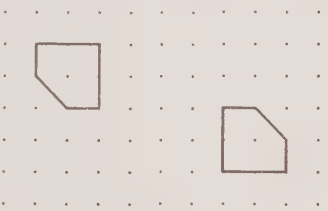
Objective

Given two congruent 2-D figures, the student will identify a motion (flip, slide, or turn) that will map one figure onto the other.

	Instrument	Correct Response
R2G 0601 DM	These two congruent figures are related by (A) a turn (B) a slide (C) a flip (D) none of these _____	B
R2G 0602 DM	These two congruent figures are related by  (A) a turn (B) a slide (C) a flip (D) none of these _____	C
R2G 0603 DM	These two congruent figures are related by  (A) a flip (B) a slide (C) a turn (D) none of these _____	C

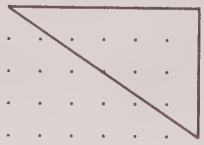
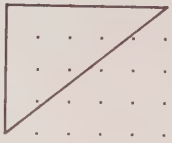
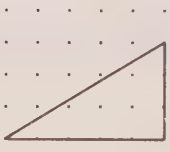
	Instrument	Correct Response
R2G 0604 DM	These two congruent figures are related by  (A) a slide (B) a turn (C) a flip (D) none of these ____	A
R2G 0605 DM	These two congruent figures are related by (A) a slide (B) a flip (C) a turn (D) none of these ____	C
R2G 0606 DS	Draw the flip line. 	
R2G 0607 DS	Draw the slide arrow. 	

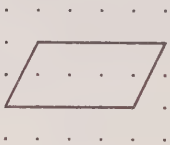
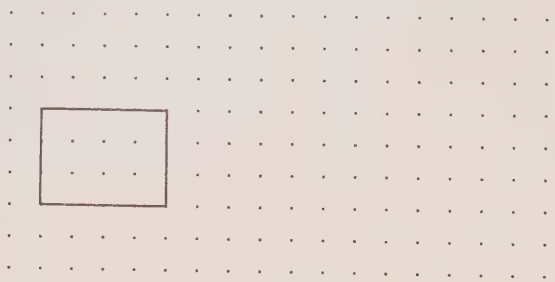
	Instrument	Correct Response
R2G 0608 DS	Draw the slide arrow. 	
R2G 0609 DS	Draw and label the turn centre. 	
R2G 0610 DS	Draw and label the turn centre. 	
R2G 0611 DM	These two congruent figures are related by  (A) a flip and a slide (B) a slide and a turn (C) a flip and a turn (D) none of these ____	A

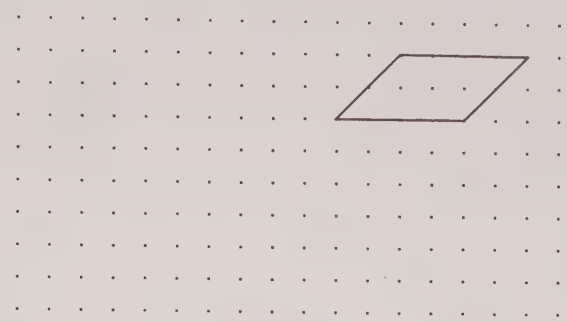
	Instrument	Correct Response
R2G 0612 DM	These two congruent figures are related by  (A) a flip and a slide (B) a slide and a turn (C) a flip and a turn (D) none of these ____	C
R2G 0613 DM	These two congruent figures are related by (A) a flip and a slide (B) a slide and a turn (C) a flip and a turn (D) none of these ____	B
R2G 0614 DM	These two congruent figures are related by  (A) a slide and a flip (B) a turn and a slide (C) a turn and a flip (D) none of these ____	B

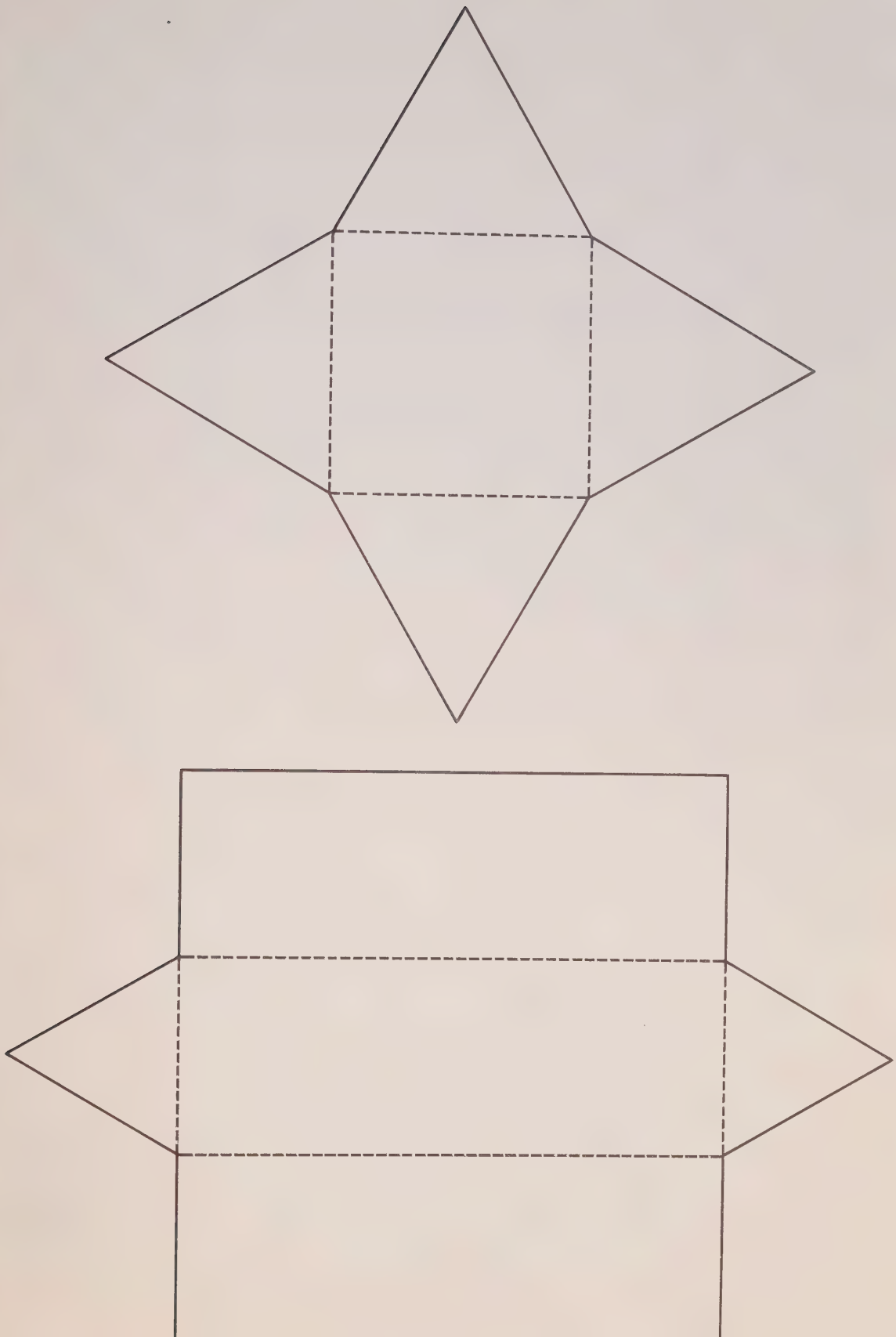
STRAND	SECTION	TOPIC	SUB-TOPIC	CATEGORY
Geometry	Relationships	2-D Figures	Similarity	Applications

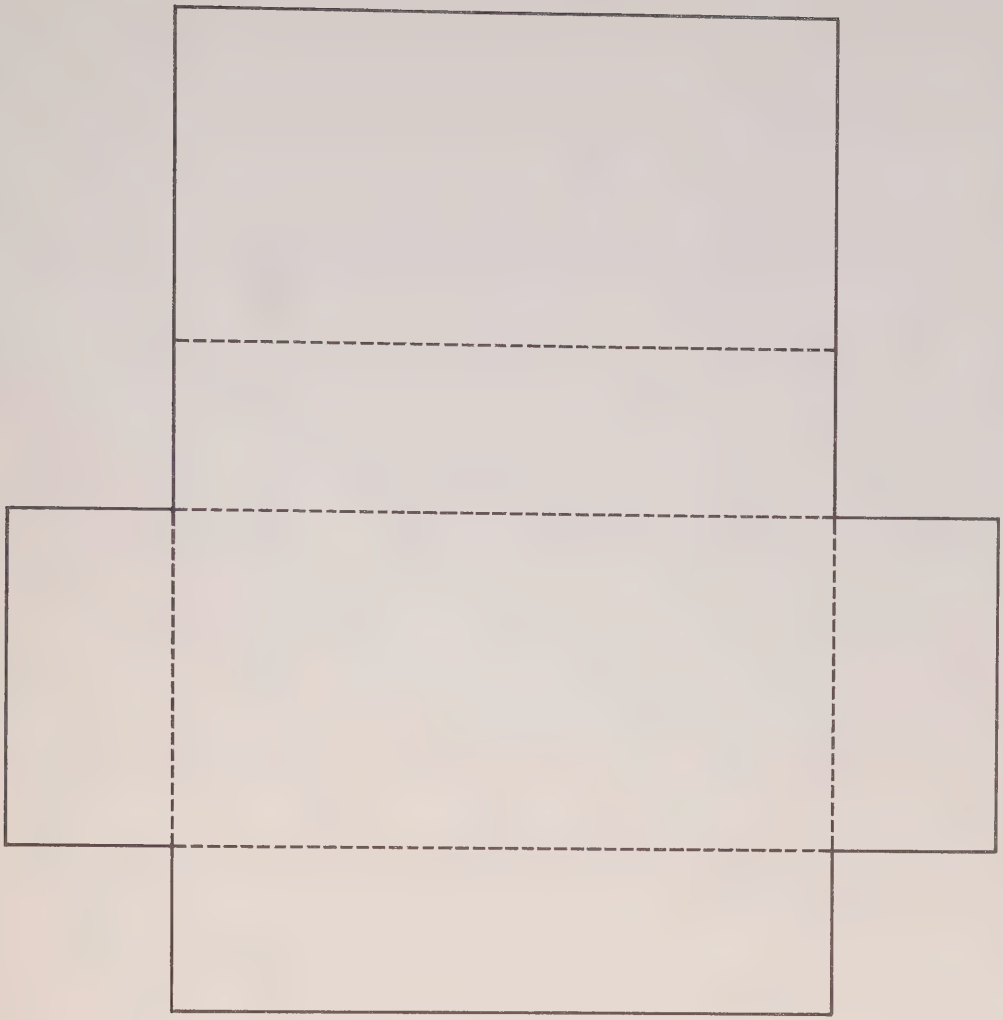
Objective Given a 2-D figure, the student will identify a similar figure.

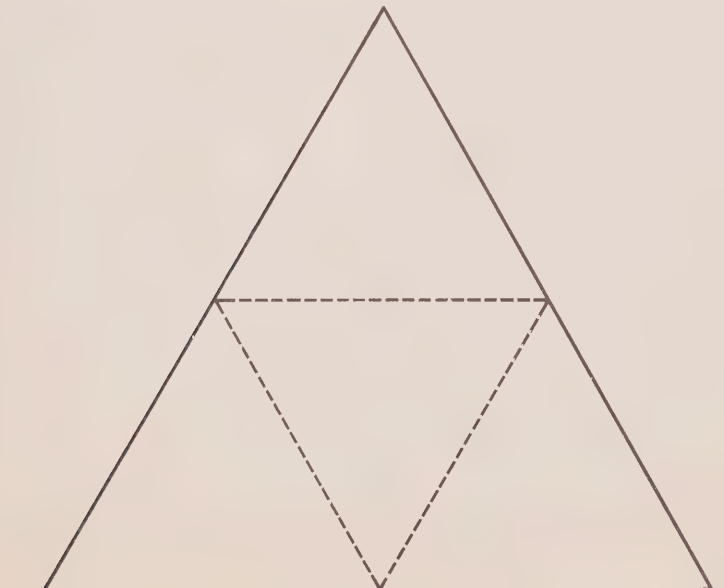
	Instrument	Correct Response
R2M 0101 DM	Which one of the figures below is similar to the one on the right?  (A) (B)  (C) (D)  ____	C

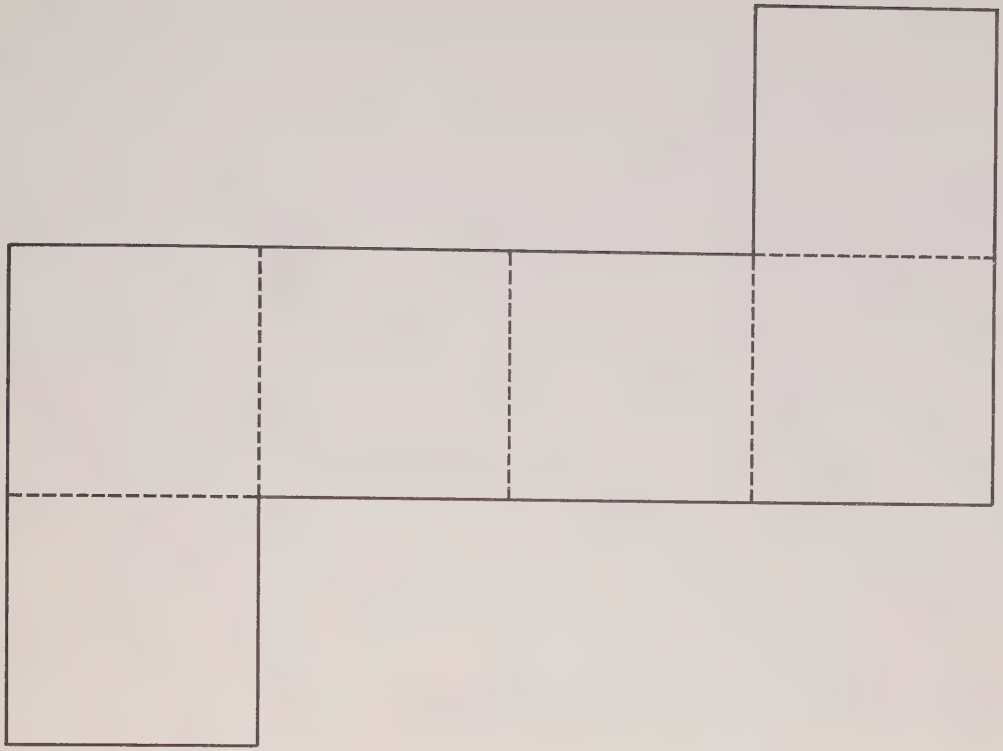
	Instrument	Correct Response
R2M 0102 DM	Which one of the figures below is similar to the one on the right? (A) (B) (C) (D)  ____	C
R2M 0103 DS	Draw a figure that is similar to the given figure. 	

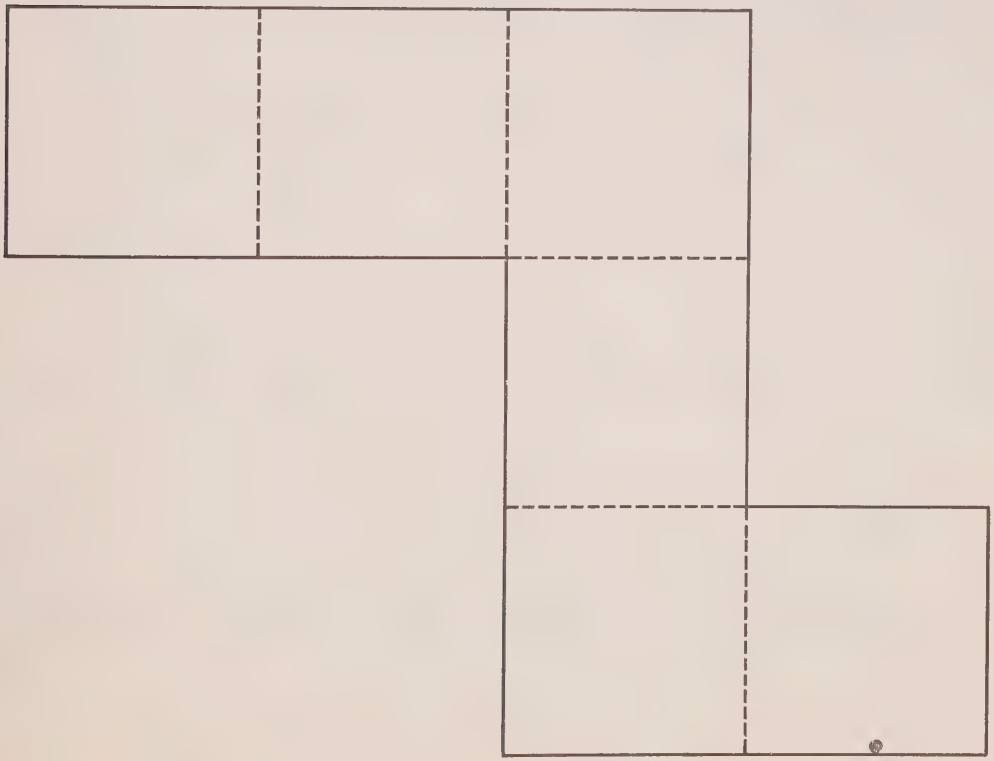
	Instrument	Correct Response
R2M 0104 DS	Draw a figure that is similar to the given figure. 	

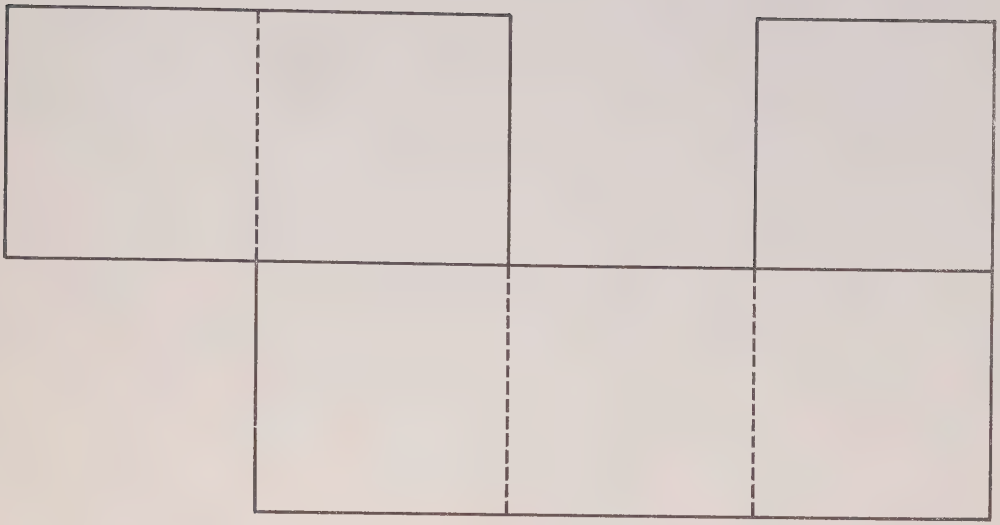


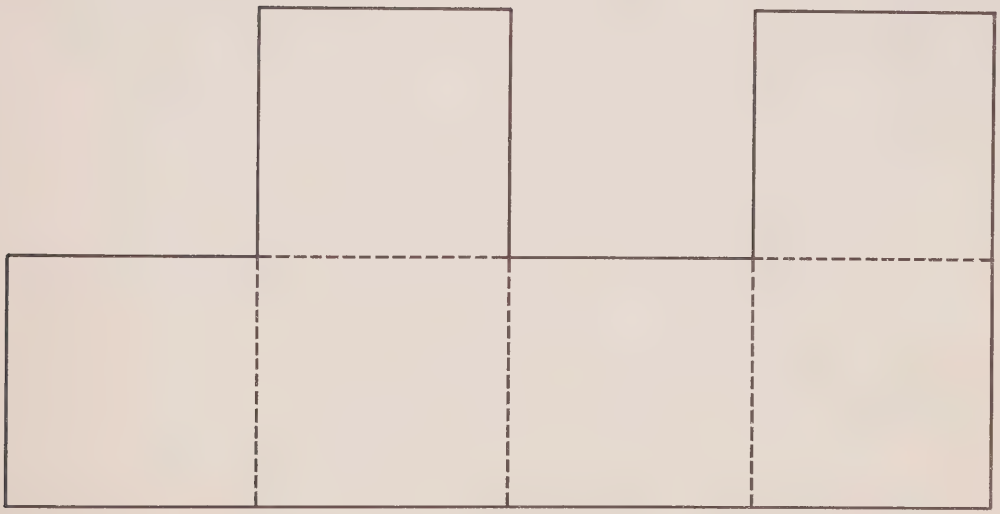


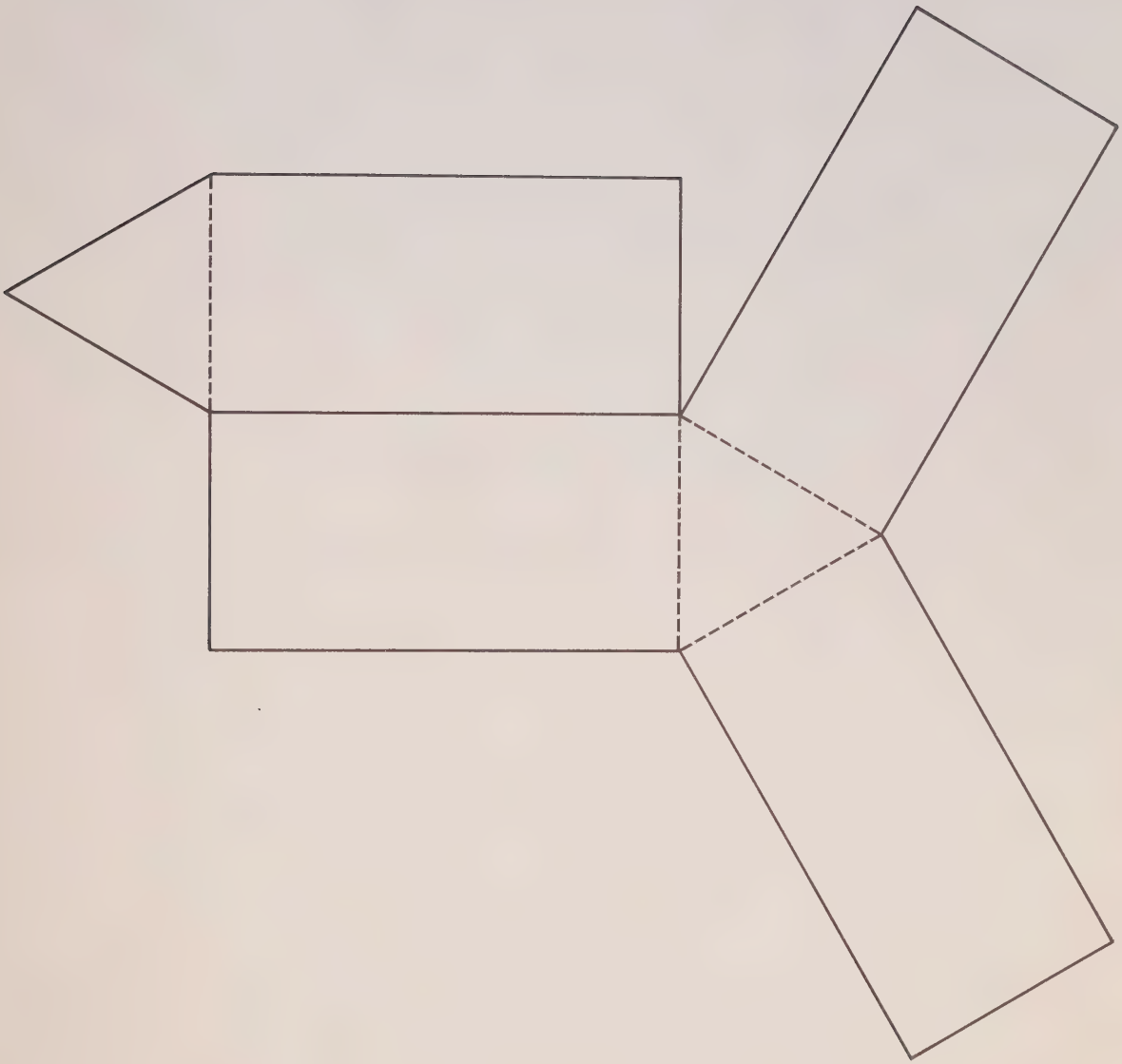


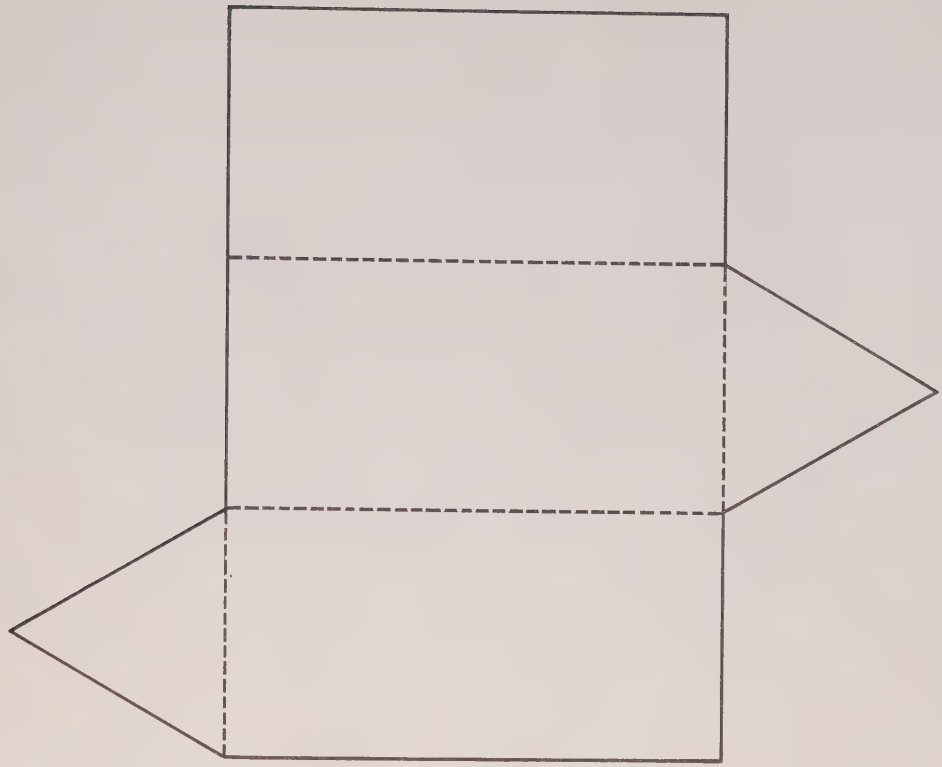


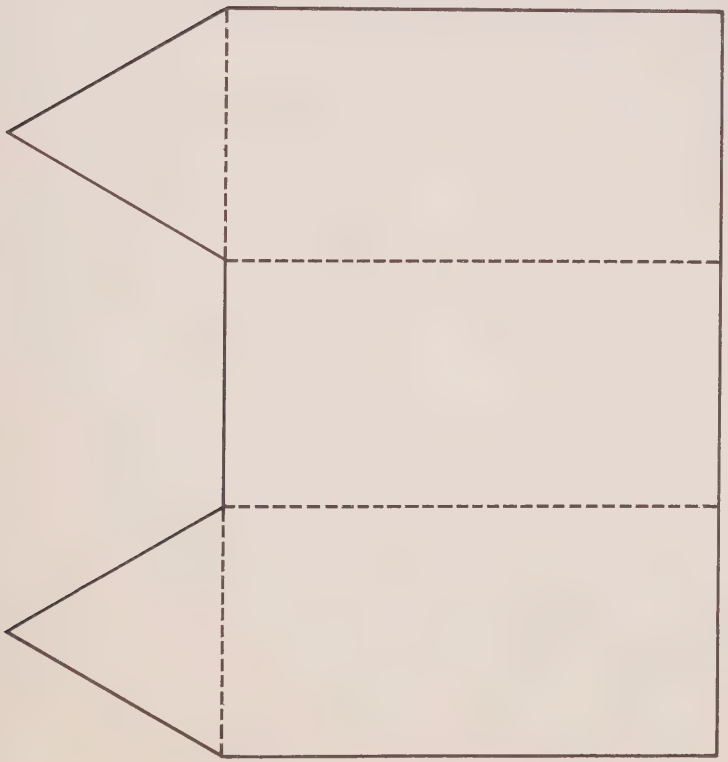


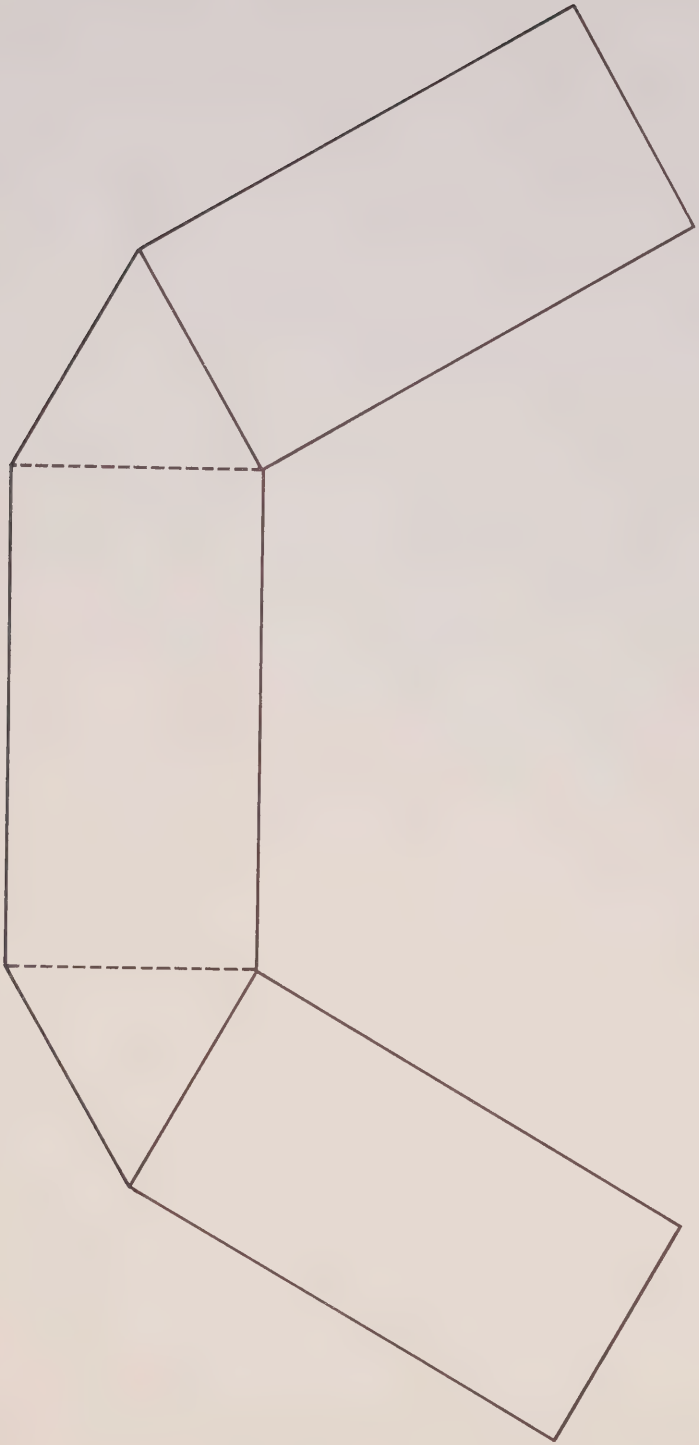












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